

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 637.—VOL. XVII.

London, Saturday, November 6, 1847.

[PRICE 6D.]

BEAM TIN MINE IN THE PARISHES OF ROCHE AND ST. AUSTELL, IN CORNWALL.—Circumstances having rendered it expedient to DISSOLVE the present COMPANY of ADVENTURERS, and place the mine on a new basis, Mr. EDMUND BROWNE has been instructed to OFFER THE ENTIRE MINE, MACHINERY, and APPURTENANCES FOR SALE, BY AUCTION, in one lot. For this purpose, a SURVEY will be held, at the Queen's Head Inn, St. Austell, on Wednesday, the 16th day of November next, at Four o'clock in the afternoon.

The reputation of this mine, and its produce, is well known in Cornwall. The tin is of the very best quality, and the concern has been, for its extent, one of the most lucrative in the county. The certainty of abundance of tin, at a few fathoms below the adit, and the efficient state of the present machinery, renders the concern a most desirable investment. The sole reason of the mine being thus offered to the public, is the inability of some shareholders, holding a large interest, to advance the requisite capital. Most of the other shareholders are ready to join a new company, that will work the mine efficiently.

Parties wishing to treat for the mine by private contract, may apply to Mr. Browne, by whom due notice will be given, should any such sale be effected—and of whom any further particulars respecting the mine may be obtained.

St. Austell, October 25, 1847.

BEAM TIN MINE.—The ADVERTISEMENT for the SALE OF BEAM MINE, by Auction, as advertised in last week's *Mining Journal*, at the request of Mr. Brown, will NOT TAKE PLACE; but those that are disposed to PURCHASE, either a part or the whole of the SHARES, may treat for the same by private contract, by applying to Mr. E. Brown, St. Austell; or to the committee, on the mine Beam Mine, St. Austell, Nov. 2, 1847. SAMUEL ROBINS, one of the Committee.

AT THE CHAMBER OF NOTARIES IN PARIS.—TO BE SOLD, BY PUBLIC AUCTION, on the 16th of November, 1847, with the reserved price of £40,000, the celebrated ESTABLISHMENT, founded by M. Hallette, sen., situated at ARIAS, PAS DE CALAIS, in complete organisation, containing FORGES, FOUNDRIES, and WORKSHOPS, for the MANUFACTURE of STEAM-ENGINES, for the Royal Navy, Commerce, and Railways, with all its PLANT and TOOLS, and the BUILDINGS, GROUNDS, and APPURTENANCES belonging to the same. The whole comprising about four acres, and affording constant occupation to 600 workmen.

For further information, apply personally, or by letter, at the offices of Mr. A. Bouard, French Advocate, 5, Chacoyer-lane, where prospectuses may be obtained.

FINAL AND PERPETUAL SALE.

VALUABLE MINING MACHINERY AND MATERIALS.

MR. CLYMA AND MR. EDSELL will perpetually SELL, BY PUBLIC AUCTION, at TING-TANG CONSOLIDATION MINE, in the parish of GWENNAP, on Tuesday, the 16th day of Nov. inst., to commence at Twelve o'clock at noon precisely, the whole of the remaining valuable

MINING MACHINERY AND MATERIALS.

Comprising a 60 and 100-inch COMBINED CYLINDER ENGINE, 9-foot stroke in cylinder, and 82-feet in shaft, with three boilers, about 83 tons (which will be sold either together or separately).

Large balance-hob, complete, capstan and shears, 16 9-foot 15-inch pumps, 2 6-foot ditto, 2 15-inch plunger pipes and cases, with stuffing-boxes and glands to match, 1 17-in. and 1 15-inch H-pieces, 3 16-inch, 1 15-inch, and 2 14-inch doorpieces and doors, 3 15-in. and 3 14-inch window-frames, 2 15-inch and 1 12-inch working barrels, 3 whines and shaft tackles, about 60 fathoms of iron-staved ladders, whale rope and chain, pump rings, brass and iron clocks and clock settings, a set of 2, 3, and 4 fall blocks, scale beams, scales and stand, 3 pairs large yokes, several thousands of bricks, wood erections, boiler, house roofs, a quantity of whale, half, and quarter timber, and plank, together with the whole of the COUNTING-HOUSE FURNITURE, 3 registered stoves, large kitchen apparatus, veruolver, a full assortment of culinary utensils, &c.

The sale will be peremptory, and the different articles may be viewed, on application to the agents of the mine; and further particulars obtained from the auctioneers, Truro.

Dated Truro, Nov. 4, 1847.

ON SALE, at the PROVIDENCE MINES, near ST. IVES, a STEAM-PUMPING-ENGINE, with boiler, complete—30-inch cylinder, and 6-foot beam; a good PLAIN ENGINE, capable of doing good duty.—See *Leam's Reporter*, 1842, 1843, and 1844.

At the NORTH UNITED MINES, near PENDENCE, a STEAM-PUMPING-ENGINE, with boiler, complete—30-inch cylinder, 9-foot stroke, and 7-inch the shaft; this is a very superior engine, built by Harvey and Co., in 1842.—Also,

At MULVER HILL, a WATER-WHEEL, 24-feet diameter, and 30-inches abreast-cast-iron axle, centre-piece, and crank, with brasses, complete.

Apply to the agents at the mines, or Higgs and Son, Penzance.

Dated Oct. 30, 1847.

STRONG MIXING PIG-IRON.—The YSTALYFERA IRON COMPANY beg to solicit ORDERS for their ANTHRACITE PIG-IRON. This iron mixes well with Scotch pig—imparting to it strength and elasticity, and receiving from it a portion of its softness and fluidity. No. 2 Pig is recommended for mixing with soft iron—Nos. 1 and 3, for machinery castings, requiring great soundness and strength. At this period, cast-iron is so much employed in the construction of bridges and other buildings, requiring all the strength and elasticity which the best mixture of metal will afford, it may be interesting to call attention to the characteristics of ANTHRACITE PIG-IRON, as reported on by that great practical authority, the late DAVID MURRAY, Esq., M.I.C.E. —

"It greatly exceeds, in strength, in defective powers, and capacity to resist impact, any iron at this time manufactured in the United Kingdom."

It now only remains for me to mention a property peculiar to this iron, which was noticed at the time I made the trial experiments, four years ago, but which has been more fully developed in those more recently made. The property referred to is one of great springiness, or elasticity, which communicates a tendency to the bar, in defecting and breaking, to resume its rectangular form. Bars that had obtained a permanent set of 2-10ths, when afterwards broken, presented but a slight deviation from a right line; and in no case, did the curvature exceed one-fourth of a tenth."

"It was also remarked, that most of the fractures, in breaking, presented a regularity of grain throughout, resembling the structure of unheated steel."

Address THE YSTALYFERA IRON COMPANY.

Dated June 22, 1847. Near NEATH, SOUTH WALES.

HOT-BLAST WITHOUT COAL, LABOUR, OR REPAIRS. DIXON AND BUDD'S PATENTS. Apply for particulars, or to inspect the process in operation on six blast-furnaces, to J. Palmer Budd, Esq., Ystalyfera Iron-Works, near Neath.

Dated June 22, 1847.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:— "I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this." Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 62, Strand, and 28, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 g. each; in gold cases, from £8 to £10 extra. Gold horizontal w.s. ches., with gold dials, from 8 g. to 12 g. each.

DENT'S PATENT DIPLEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing description and directions for its use is, each, but to customers gratis.

LONDON AND PROVINCIAL JOINT-STOCK LIFE INSURANCE COMPANY.—THE DIRECTORS invite the public generally, also BUILDING SOCIETIES and BORROWERS, through them or from other parties, to examine the peculiar system and striking advantages offered by this office.

Every description of life assurance, investment, and loan business transacted.

Low rates of premium and three-fourths of profits divided.

For prospectuses, &c., apply to JOHN MASSON, Secretary.

Offices, 39, Nicholls-lane, Lombard-street.

WILLIAM JOYCE, DESIGNER AND ENGRAVER ON WOOD, BOLT-COURT, FLEET-STREET, LONDON.

W. J. respectfully informs AUTHORS, BOOKSELLERS, PRINTERS, &c., that, having had long practical experience in DRAWING and ENGRAVING, of every variety—viz.: Inventions of all descriptions, for Engineers, Machinery, Figures, Landscapes, Architectural and Perspective, Agricultural and Anatomical subjects; Specimen Books for Civil Engineers, Ironfounders, Lamp Manufacturers, Silversmiths, and every other Branch requiring Illustrations, he is enabled to speak with confidence, as to the satisfaction he could give with regard to promptness, accuracy, and economy.

Weekly and Monthly Publications Contracted for.

STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.

PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA. The Peninsular and Oriental Steam Navigation Company BOOK PASSENGERS for CEYLON, MADRAS, and CALCUTTA direct, by steamers leaving Southampton on 20th, and for Alexandria, en route to Bombay, on the 1st of every month.

A steamer from Southampton leaves the 1st and 20th of every month for Malta, whence are steamers to Naples, Genoa, Civita Vecchia, three times a month.

STEAM TO CORUNNA, OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR. A steamer leaves Southampton on the 7th, 17th, and 27th of every month.

At the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

TO RAILWAY ENGINEERS, CONTRACTORS, AND OTHERS.—The ADVERTISER having obtained her Majesty's Letters Patent for an IRON TRUSS BRIDGE, peculiarly adapted, from its great strength and economy, for RAILROADS, is ready to treat with such companies, and other persons, as may feel disposed to adopt it. This bridge has been put up in the United States, on the New York and Harlem railroad, it being one of 70 feet span, and weighing only 13 tons; and is highly approved of by the directors—in consequence of which several other companies are giving their orders for its erection.

A model can be seen, and further particulars given, either personally or by letter, on application, to Mr. S. Moulton, care of the Editor of the *Mining Journal*, 26, Fleet-street.

ELECTRIC TELEGRAPH COMPANY

LONDON, 245, STRAND, September 1, 1847.

COMMERCIAL TELEGRAPH.

The works of the lines for commercial communications, between the places enumerated below, embracing a SYSTEM OF TELEGRAPHHS for COMMERCIAL PURPOSES only, and distinct from that reserved for the special use of railways, being so far advanced as to admit of their completion by the commencement of the coming year, the directors think that the time has now arrived, when it becomes their duty to make known the arrangements which they contemplate for the accommodation of the public.

STATIONS will BE OPENED, in central situations, in the PRINCIPAL TOWNS, whence MESSAGES and DISPATCHES will BE FORWARDED TO, and RECEIVED FROM, all the OTHER STATIONS of the ELECTRIC TELEGRAPH COMPANY.

In order to give to Merchants, Bankers, Manufacturers, and all connected with trade, the greatest possible amount of information, a ROOM will be RESERVED in each of the COMPANY'S STATIONS for SUBSCRIBERS, in which will be received, tabulated, and exhibited, all Intelligence of Commercial or Public Interest—for instance:

SHIP LISTS, from the various Ports.

SHARE LISTS, from the various Exchanges.

PRICES CURRENT.

STOCK EXCHANGE LISTS.

CORN MARKETS, from the various Towns.

PRICES OF LIVE STOCK, &c. &c.

In LONDON, a CENTRAL STATION, suited to the importance of the metropolis, is in COURSE OF ERECTION, in the immediate vicinity of the Bank and Royal Exchange; in this Station the whole TELEGRAPHIC NEWS of the COUNTRY will be CONCENTRATED, and FORWARDED IN EVERY DIRECTION. And here, as in other towns, a ROOM will be RESERVED for SUBSCRIBERS.

The SUBSCRIPTION to these ROOMS will be TWO GUINEAS per annum, paid in advance, which will entitle SUBSCRIBERS to the RIGHT OF ENTRANCE to ALL the ROOMS of the COMPANY—including the Central Station at London.

The foregoing details some of the advantages of the Commercial Telegraph to subscribers; but the requirements of the public in general will be provided for by the establishment of offices, which will at all times be open for the reception and transmission of messages and dispatches; while messengers will be kept at the various stations, by whom dispatches may be sent out to any part of the town where the communication has been received by Telegraph at the Company's Station.

Subscribers' Names are received at the Commercial Telegraph Office, where any further information may be obtained.

The following are the Towns to which the Commercial Telegraph will be first extended:—

London	Chester	Southampton	Derby	Darlington
Margate	Liverpool	Winchester	Nottingham	Newcastle
Ramsgate	Rotherham	Dorchester	Lincoln	Berwick
Deal	Barnsley	Bristol	Chesterfield	Edinburgh
Dover	Wakefield	Gloucester	Sheffield	Glasgow
Folkestone	Leeds	Cheltenham	Bradford	Scarborough
Canterbury	Hull	Peterborough	Walsall	Bridlington
Northampton	Rochdale	Yarmouth	Lowestoft	Stamford
Coventry	Hall	Huntingdon	Cambridge	Norwich
Birmingham	Midlands	Hertford	Chelmsford	St. Ives
Wolverhampton	Tonbridge	Manchester	Ipawich	Ware
Stafford	Gosport	Leicester	York	Colechester

J. LEWIS RICARDO, Chairman.

The attention of Railway Engineers, Architects, and Contractors is particularly directed to the great advantages to be derived from the application of SEYSEL ASPHALTE, as the only imperious and permanent covering for arches and roofs, and lining of reservoirs, gutters, &c. The arrangements of CLARIDGE'S PATENT ASPHALTE COMPANY enable it to execute works of any extent with the greatest promptitude.

In order to guard against the use of spurious materials, it is important that all applications for works to be executed direct to this company; and, as a further protection, it is suggested that Engineers, Architects, and Contractors, should require a CERTIFICATE from the company that the proper description of material has been used.

Information may be obtained as to all works which have been executed by the company since its establishment in 1836, which will prove that the failure of many works represented to have been done with the genuine material has resulted from the substitution of a spurious one.

L. FARRELL, Secretary,

Seyssel Asphaltic Company, Stangate, London.

The following are the Towns to which the Commercial Telegraph will be first extended:—

SCALE OF PRICES.			
1-16	"	2s.	
1-8	"	3s.	
1-4	9 lbs., or one-third the weight of oak.	4s. 6d.	
1-2	17 lbs., or ditto	10s.	
3-4	27 lbs., or ditto	12s.	
1	36 lbs., or ditto	16s. 6d.	

Felt for Sheathing under

SIR JAMES MURRAY'S FLUID MAGNESIA.—Prepared under the immediate care of the inventor, and established for upwards of 30 years.—This elegant preparation is recommended in all cases of bile, acidity, indigestion, gout, and gravel, as the most safe, easy, and effectual form in which magnesia may—and indeed, the only one in which it ought—to be exhibited, possessing all the properties of the magnesia now in general use, without being liable, like it, to form dangerous concretions in the bowels. It effectively cures HEARTBURN without injuring the coats of the stomach, as soda, potash, and their carbonates are known to do; it prevents the food of infants turning sour; in all cases it acts as a pleasing aperient, and is peculiarly adapted to females. It has long been known that the most serious consequences have frequently resulted from the use of solid magnesia, which has been proved by Mr. Brände and many other eminent chemists, to form concretions in the bowels, endangering, and, in some instances, destroying life.—Sir HUMPHREY DAVY testified that this solution forms soluble combinations with uric acid salts in cases of gout and gravel—thereby counteracting their injurious tendency, when other alkalies, and even magnesia itself, had failed.

From Sir PHILIP CRAMPTON, Bart., Surgeon-General to the Army in Ireland:—
“DEAR SIR.—There can be no doubt that magnesia may be administered more safely in the form of a concentrated solution than in substance; for this, and many other reasons, I am of opinion that the fluid magnesia is a very valuable addition to our Materie Medicæ. PHILIP CRAMPTON.”—Sir J. Clarke, Sir A. Cooper, Dr. Bright, and Messrs. Guthrie, and Herbert Mayo, of London, recommend Murray's Fluid Magnesia, as being infinitely more safe and convenient than the solid, and free from the danger attending the constant use of soda or potash.

Letter from J. Murray, Esq., Lecturer on Chemistry, F.S.A., P.L.S.:—

“DEAR SIR JAMES.—Many years have elapsed since you first showed me, in your laboratories, your super-carbonate, or soluble magnesia, and demonstrated experimentally the remarkable quantity of pure magnesia held in transparent solution. It was then new to me, as it was to the chemical world, and I speak advisedly, as a practical chemist. I believe its medical value cannot be too highly estimated; and I am satisfied that the public is under an infinite debt of gratitude to you for those invaluable researches, which have been the means of its introduction. Not to mention its more obvious healing virtues, I believe it to be almost, if not altogether, a specific for lithic acid concretions, in the pure condensed solution invented by you.

“Believe me to be your's, faithfully, JOHN MURRAY, F.S.A.

To Sir James Murray, Dublin.
Portland-place, Hull, Aug. 30, 1839.”

The following testimonial of the celebrated “Diatin Family,” who are well known to her Majesty and the nobility of England proves the great value of Sir James Murray's fluid magnesia, and is very encouraging for delicate persons going to sea:—

“Sir.—Having arrived from Glasgow, per the steam-ship *Jupiter*, in this stormy season, without the slightest sea sickness, we feel bound to attribute this exemption to the most agreeable *affectionate draughts* of your solution of magnesia and acidulated syrup, which were kindly furnished to us by that attentive officer, Capt. Ellis. Upon all former occasions we were martyrs to sea sickness, and I trust it a great blessing that travellers may now enjoy such health and comfort at sea, as we derived from the use of this delightful drink.”

“THE DISTIN FAMILY.

From Dr. KENNEDY, Master of the Lying-Hospital, Dublin:—

“DEAR SIR.—I consider the fluid magnesia to be a very valuable and convenient remedy in cases of irritation or acidity of the stomach, but more particularly during pregnancy, before and after parturition, and in cases of diarrhoea, &c. It is a safe remedy for gravel and gout.

In addition to the above, Professor Duncan, of Edinburgh, in his extensive practice, established its efficacy for removing acidities—alleviating irritation of the stomach or urinary organs, and for dissolving lithic concretions and uric salts; and, consequently, as the best remedy for gravel and gout.

CAUTION.—In order to avoid the danger of concretions and sediments, which result from the use of over-saturated and unchemical compounds, made by non-medical persons, the public will please to observe, that Sir James Murray's pure fluid magnesia is prepared of that proportion of strength which is conformable to the laws of chemical equivalents, and which has been proved, in hospital and private practice, during the last 30 years, to be the best adapted for the human stomach, and the most suitable for the treatment of females and children.

Sold by the sole consignee, Mr. WILLIAM BAILEY, of North street, Wolverhampton, and all wholesale and retail druggists and medicine agents throughout the British empire, in bottles, 1s., 2s. 6d., 3s. 6d., 5s. 6d., 11s., and 21s. each. The acidulated syrup, in bottles, 1s., 2s. 6d., N.B. Be sure to ask for “Sir James Murray's Preparation,” and to see that his name is stamped on each label, in green ink, as follows:—“James Murray, Physician to the Lord Lieutenant.”

On the concealed cause that preys on the health and shortens the duration of human life.

Illustrated with coloured engravings.—Just published, in a sealed envelope, Price 2s. 6d., or free by post, 3s. 6d.

CONTROL OF THE PASSIONS: a Popular Essay on the Duties and Obligations of the Married State—the disqualifying impediments and consequent disappointment of marital anticipations—the physiology, use, and abuse of the passions—injurious results of precocious exertions and excesses—the concealed cause of sexual debility, and the infirmities of the reproductive organs—with advice to those suffering from excessive indulgence in a secret vice, or from infection; and remarks on gonorrhœa, gleet, stricture, and syphilis. Illustrated with coloured engravings and cases. By CHARLES LUCAS & Co., Consulting Surgeons, 60, Newman-street, Oxford-street, London, Member of the London College of Medicine, &c.—Contents of the work:—

Chap. 1. Bodily and mental exhaustion induced by indiscriminate indulgence of the passions, illustrated with coloured engravings.—Chap. 2. Baneful results of a secret vice on the mind and body, evidenced in the production of consumption, epilepsy, and other convulsive diseases.—Insanity, idiotry, sloping melancholy, indulgence, stricture, impotence, and sterility, with observations on the duties of married life, and on the unhappiness caused by unfruitful unions.—Chap. 3. Debility and exhaustion of the principal vital functions—the nature and treatment of impotence and sterility, and the imperfect performances of the marital act, caused by the practice of self-indulgence.—Chap. 4. Gonorrhœa.—Chap. 5. Syphilis, and its attendant maladies and treatment.—Cases, and concluding observations, plates, &c.

Published by the authors, and sold by Brittain, 54, Paternoster-row; Hannay and Co., 63, Oxford-street; J. Gordeus, 146, Leadenhall-street; G. Mansell, 118, Fleet-street; Sanger, 159, Oxford-street; H. Wishall, 79, High-street, Birmingham; H. Whitmore, 115, Market-street, Manchester; J. Howett, 54, Church-street, Liverpool; W. and H. Robinson, 11, Grosvenor-street, Edinburgh; T. H. Powell, 16, Westmoreland-street, Dublin; and all booksellers.—Persons desirous of obtaining the above work, and not wishing to apply to a bookseller for the same, may, to ensure secrecy, have it direct from the authors, by enclosing 3s. 6d., or postage stamps to that amount.—At home from Ten till Two, and from Five till Eight. Immediate replies sent to all letters, if containing the sum of £1 for advice, &c., &c.; 60, Newman-street, Oxford-street, London.

DR. LA'MERT ON THE SECRET INFIRMITIES OF YOUTH AND MATURITY. With 40 coloured engravings on steel.

Just published, and may be had in French or English, in a sealed envelope, 2s. 6d.; or post-free, from the author, for forty-two stamps.

SELF-PRESERVATION: A Medical Treatise, on the Physiology of Marriage, and on the Secret Infirmities and Disorders of Youth and Maturity, usually acquired at an early period of life, which enervate the physical and mental powers, diminish and enfeeble the natural feelings, and exhaust the vital energies of Manhood; with Practical Observations on the Treatment of Nervous Debility, whether arising from these causes, close study, or the influence of tropical climates; local and constitutional weakness, syphilis, stricture, and all diseases and derangements resulting from indiscretion; with 40 coloured engravings, illustrating the Anatomy, Physiology, and Diseases of the Reproductive Organs, explaining their various structures, uses, and functions, and the injuries that are produced in them by solitary habits, excesses, and infection.

BY SAMUEL LA'MERT, M.D., No. 9, BEDFORD-STREET, BEDFORD-SQUARE. A Medical Practitioner, Matriculated Member of the University of Edinburgh, Licentiate of Apothecaries' Hall, London, Honorary Member of the London Hospital Medical Society, &c.

REVIEW OF THE WORK.

The author of this singular and talented work is a legally qualified medical man, who has evidently had considerable experience in the treatment of the various disorders, arising from the follies and frailties of early indiscretion. The engravings are an invaluable addition, demonstrating the consequences of excesses, which must act as a salutary warning to youth and maturity, and by its perusal, many questions may be satisfactorily replied to, that of adult, even to the most confidential friend.”—*Era.*

“Unquestionably this is a most extraordinary and skillful work, and ought to be extensively circulated; for it is quite evident that there are peculiar habits acquired at public schools and private seminaries, which are totally unknown and concealed from the conductors of those establishments, and which cannot be too strongly reprobated and condemned.

The engravings that accompany the work are clear and explanatory; and being written by a duly-qualified medical practitioner, will, doubtless, be the means of saving many a youth, as well as those of mature age, from the various evil consequences resulting from early indiscretions.”—*Magnet.*

Sold by Kent and Richards, 52, Paternoster-row; Hannay, 63, Oxford-street; Starke, 11, Tichborne-street, Haymarket; Mansell, 118, Fleet-street; Gordon, 146, Leadenhall-street; or free by post, for 42 stamps, from the author's residence, who may be consulted personally (or by letter) on these disorders daily, from 10 till 2, and from 5 till 8.

Illustrated by 26 Anatomical Coloured Engravings on Steel, On Physical Disqualifications, Generative Incapacity, and Impediments to Marriage. New Edition, enlarged to 196 pages.—Just published, price 2s. 6d., or by post, direct from the establishment, 3s. 6d. in postage stamps.

THE SILENT FRIEND: a medical work, on the infirmities and decay of the generative system, from excessive indulgence, infection, and the use of mercury, with remarks on marriage, and the means of obviating certain disqualifications, illustrated by 26 coloured engravings. By R. & L. PERRY & CO., 19, Berners-street, Oxford-street, London. Published by the authors; sold by Strange, 21, Paternoster-row; Hannay, 63, and Sanger, 159, Oxford-street; Starke, 11, Tichborne-street, Haymarket; and Gordon, 146, Leadenhall-street.

Part the First treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—Part the Second treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three anatomical engravings.—Part the Third treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. The consequences of neglect, and of the abuse, of mercury are also clearly pointed out. This section is illustrated by 17 coloured engravings.—Part the Fourth treats of Perry's Preventive Lotion, by the use of which the dangers of infection are obviated. Its action is simple but sure; it combines with the virus directly, and destroys its power on the system.—Part the Fifth is devoted to the consideration of marriage and its duties. The causes of improcreative unions are also considered, and the whole subject critically and philosophically inquired into.

The **ORDINAL BALM OF SYRIACUM** is exclusively employed in treating nervous and sexual debility, impotence, &c., 1s. and 3s., per bottle.—THE CONCENTRATED DESTRUCTIVE ESSENCE, an anti-syphilitic remedy, for purifying the blood in cases of infection, eruptions, scirrups, and the abuse of mercury, 1s. and 3s., per bottle.—PERRY'S PURIFYING SPECIFIC PILLS, 2s. 9d., 4s. 6d., and 1s. per box.—PERRY'S PREVENTATIVE LOTION, an application to obviate the dangers of infection, 2s. a bottle. 25 packets, with advice, to be had at the establishment, payment fee, if by letter, £1. 25 packets, with advice, to be had at the establishment, payment fee, from 11 to 12, by which the £1. is saved.—Attendance daily at 12, Berners-street, from 11 to 12, and 2 to 5; on Sundays, from 11 to 12.

Sold by Sutton and Co., 10, Bow-churchyard; W. Edwards, 67, St. Paul's Churchyard; Buryard and Sons, Farringdon-street; Parker, 4, Cheapside; R. Johnson, 52, Cornhill; L. Hill, Newgate; W. B. Jones, Cheapside; J. W. Tanner, Eggar, 5, Smithfield; Windsor; Ede and Co., Dorning; John Murphy, High-street, Romford—of whom may be had the *Silent Friend*.

ON HUMAN POWER TO NAVIGATE THE AIR.—Ambition to imitate the feathered tribe, and soar aloft wherever pleasure or other more mighty impulses might lead, has ever been a passion to some extent inherent in the human breast. From the fabulous period, when Icarus was flying with his father, Daedalus, from Crete to Sicily, when he melted the wax of his wings and fell into the sea, ever since called the “Icarian,” up to modern times, attempts have been made to succeed in “navigating the air.” Since, however, in April, 1843, when Mr. Henson patented his

“monstrous fancy” for *rising into the air by going down an inclined plane, and remaining up by having exposed 1½ ft. of surface for every 1 lb. of weight*, the subject, with the exception of the usual ballooning, has remained in *status quo* until the past week. We have now before us a pamphlet, just published by J. Gilbert, of Paternoster-row, on *Aerial Navigation*, containing a description of a proposed flying machine on a new principle, *Daedalus Britannicus*. The author, it is but justice to say, does not come before the public with the impious consequence of one who has made a discovery, but never put it into practice, of something which is to bring about the “millennium,” or to make “grapes grow on thorns,” or “figs on thistles”; but he has taken a more rational view of the means of navigation of the air, and the means of realising it, than we ever remember to have before seen in print; and, with these rational views, he lays them before the public, “in the hope of enlisting the aid of those who may be disposed to assist in its embodiment, by forwarding the construction of his machine.” The author of this little work has evidently paid considerable attention to the subject; and the several chemical and mechanical arrangements recommended, are deduced from sound philosophical principles. He here, as man in all engineering operations should do, follows Nature, which never errs: he takes the bird for his pattern, and lays down the four following principles of its flight:—1. A reduction of specific gravity, by inflating the vessels with air.—2. Opposing a large surface to the resistance of the air, in a perpendicular direction to the earth, and but little in any other.—3. Preventing the upward stroke of their wings from neutralising the downward, by altering the surface opposed to the air, and by a slower movement.—4. Moving very rapidly in a horizontal line, when striking their wings obliquely downwards. These are the movements he endeavours to imitate in the construction and function of his machine, which we shall now endeavour to describe:—The balloon itself is 63 ft. long, with a conical shield at the head, beneath which is a car, 25 ft. long, for passengers; to the other end of the balloon is attached a tall, 25 ft. long, jointed, to move up and down, beneath which is a rudder, 6 ft. long and 2½ ft. broad, hung on hinges, to expose more or less of its surface to the wind. Two pairs of wings are placed on strong cross-bars to the framework, one at each end of the car; and beneath these wings are as many gas boxes, or bellows, which work the wings as follows:—The author proposes to fill the balloon with one of the hydro-carbures; to admit it by pipes from the balloon into the four bellows, along with a proper mixture of atmospheric air, to render it explosive; to explode it therein, when the expansion of the gases will open the bellows; and, as condensation is almost immediately effected, the pressure of the atmosphere closes them; a regular motion is thus produced, by which the motion of the wings is effected. Upon these data, he calculates the gas in the balloon, estimating its weight, with cargo, at 2000 lbs., would be equal to eight hours' flight, giving 12 strokes per minute to the wings; the distance to be accomplished, he leaves to practice. There are many minor details, which we have not space to describe; but the principles are truly scientific, and we think something may come of it. How far the using explosive mixtures, and the loss of the buoyant power, is objectionable, we may leave for some future remarks.

LIGHT FROM ELECTRICITY.—W. E. Staite, Esq., of London, the inventor of a new mode of lighting by electricity, explained his invention to large audiences, in the lecture-room, Newcastle. Having first described his galvanic battery and other apparatus, which are on an entirely new principle of his own maturing, and which cannot be well described without diagrams, the lecturer observed, that the production of light from electricity was not a new thing *per se*. The experiment of the charcoal points, and the phenomena of the voltaic arc, with powerful batteries, were well-known. The difficulties hitherto experienced had been—1. The economical production and application of the electric currents.—2. The discovery of a suitable material for the development of the light.—3. The rendering of the light permanent (the greatest difficulty of all.) What means, and to what extent, he had overcome these difficulties, Mr. Staite informed his audience. He produced, under a glass receiver, brilliant light, before which the gas jets of the lecture-room turned, not pale, but yellow. “The peculiar characteristics of the electric light (said Mr. Staite) were its purity and volume. The most delicate shades of colour might be detected, while the eye was not distressed by its effects. The same quantity of light, developed by gas, or any other known means, would be absolutely unbearable. That the light was not the result of combustion, strictly speaking, was evident. There could be no combustion without the presence of oxygen; and, as the light was developed to the best advantage under a closed glass, from which supplies of atmospheric air were excluded, it was quite certain that combustion had nothing to do with the matter.” The light, in fact, the lecturer remarked, could be produced as readily in water as out of it. He showed its peculiar applicability to coal mining, for it could not explode the foulst atmosphere. He then came to the comparative cost of the electric and other lights. With a battery consisting of four small cells, a light was developed equal to 350 mould candles (sixes), or 300 wax candles, or 64 cubic feet of the best gas, burnt in the standard burner. This was effected by a consumption of zinc equal to 0·77, or 77-100ths of a pound, being little more than 4 lbs. of zinc per hour. When the light, however, was brought to its maximum, by increasing the distance of the electrodes to their limit, the light was increased nearly three-fold, whilst the current itself was reduced to about three-fifths in quantity. “This curious fact (continued Mr. Staite), I have frequently observed before. So that the light, when developed under the best circumstances consistent with its permanence, was produced by a consumption of a seventh part only of a pound of zinc per hour—and that light equal to 350 tallow candles. Assuming that the zinc so consumed was worth one halfpenny, and that the cost of the working solutions, deducting the value of the products (sulphate of zinc, &c.), was as much more, we have the following comparative result:—Electric light, 1d. per hour; gas light, equal thereto, 6d. to 8d.; tallow candles, 7s. 6d.; wax, 12s. 6d.” [But, in addition to the zinc and solutions, an allowance must be made for apparatus, skill, labour, &c., as in the manufacture of other lights—gas, wax, tallow, &c.] In conclusion, Mr. S. observed, “By a careful comparison of all modes of effecting artificial illumination, I think I am justified in saying that there is no light so cheap as that evolved by voltaic currents of electricity; and there is certainly none which exhibits such pure and brilliant results. The absence of all smoke and flame, and noxious gases—the non-consumption of oxygen—the impossibility of its igniting surrounding substances—and the simplicity of the apparatus—are powerful recommendations for the adoption of the light in all places where purity, and brilliancy, and safety, and economy, are sought for.” In the course of his address, Mr. Staite truly observed, in reference to the alleged jealousy of coal-owners, gas-makers, &c., that it was idle to throw obstacles in his way: if his electric light had superior merit on its side, it would come into use in spite of any local opposition: if, on the contrary, in practical value it was inferior to others, it would fall into oblivion.—*Gateshead Observer.*

ON NERVOUS DEBILITY & GENERATIVE DISEASES.—Just published, the Thirtieth Thousand, an improved edition, revised and corrected, 120 pages, price 2s., in a sealed envelope, or forwarded, post-paid, to any address, secure from observation, for 2s. 6d., or postage stamps, illustrated with numerous anatomical coloured engravings, “MANHOOD: the Causes of its Premature Decline, with Plain Directions for its Perfect Restoration.” A medical essay on those diseases of the generative organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in Youth, Manhood, and Old Age, with practical remarks on marriage—the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.

By J. L. CURTIS and CO., Consulting Surgeons, 7, Frit-street, Soho-square, London.

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THE CURRENCY—CIRCULABLE RESOURCES OF RAILWAY COMPANIES.

Under this head, we showed, in our last number, in what manner railway companies might, and were actually in some instances beginning to supply for themselves, independently of the banks, the extended currency required for their operations. We have now to congratulate the country on the circumstance of her Majesty's Ministers having become convinced of the present inadequacy of the currency, and having suspended the Bank Charter Act. We trust that the Bank of England will now also obtain new light, and come to a just opinion as to the value of railway securities, and will rescind their resolution against receiving railway paper. That perverse resolution has lately been adopted by other banks both in England and Scotland, and we conceive it can easily be shown that they could not have taken a more injurious course for their own interests. In the first place—as to the necessity for an increased circulating medium—can anything be clearer than that, when bank notes and specie become diffused over the most remote parts of the country—through the “navvies” enriching village hucksters and patty publicans, who previously could not make a livelihood by their calling alone—such notes and specie must take a longer time to return to the banks, and a greater quantity must be necessary to supply the current of money over its extended course. Now, this drain of money cannot be resisted by the banks, for the deposits are withdrawn from them by railway shareholders to pay calls. In the early stages of a railway the banks suffer little; for among the first subscribers of a railway contract, there are always many mere speculators for a rise, or men of straw, who have no bank deposits to lift; but as the works go on, calls multiply, and the men of straw are forced to sell their shares to others who are able to pay, and who draw upon the banks accordingly. Hence the banks suffer as the railways advance towards completion, and, as we have observed, the money goes upon a long journey, and what means are the rapidity and urgency of the calls, and the consequent drain of money from the banks, to be mitigated? Surely not by regulating promissory notes issued by the railway companies! These are the only substitute

RAILWAY AND COMMERCIAL GAZETTE.

Congress of Science in Italy.

[Reported by WILLIAM POLE, Esq., C.E.; continued from last week's Mining Journal.]

BOTANY AND VEGETABLE PHYSIOLOGY.

PRESIDENT.—Professor Roberto di Vismiani, of Padua.

September 14.—After the opening address, Professor TREVIRANUS delivered, in the Latin language, the general heads of his memoir on the structure of the fruit of the *Cattus* and *Cucurbitaceae*. It was resolved to print the memoir entire.—Sig. VITTORIO TAVISI gave an answer to a question proposed at the last congress, with reference to the construction of cellular tissue.

15th.—Professor PARLATORE made some remarks on a new use to which portions of botanical gardens might with advantage be applied—namely, for cultivating the particular plants of the most remarkable botanical regions. He instanced examples he had himself carried out, on this principle, at Florence.—Professor MORETTI described the commencement of a series of experiments now in progress, upon the etherization of plants. The *Hedysarum givone* had been selected for the purpose, as it was in which the effects were manifested, without the necessity of removing the apparatus.—Sig. TAVISI corrected some mistakes, with reference to certain species of the genus *Prusso*.

16th.—The PRESIDENT announced, with much gratification, the arrival of the celebrated Robert Brown, to honour this section with his presence; and invited this distinguished botanist to a seat at the presidency table.—Prof. ZANTEDESCHI read a memoir, on the movements presented by certain *Mimosa* in the dark, which induced remarks from other botanists of the same subject.—Professor PARLATORE described his late studies on certain genera of *Gramineae*, illustrated with specimens.—Professor DE VISMIANI corrected a mistake, with regard to the *Tillandsia sonora*.

17th.—The PRESIDENT acknowledged, with gratitude, acts of courtesy shown to the section by His Serene Highness the Archduke Viceroy.—Baron HUGO made some observations upon the *Glycine Apis*, or *Apis tuberosa*, specimens of which had been presented by the Viceroy.—Mr. R. BROWN presented a map, showing the voyage of 3000 miles, made by Dr. Leichhardt, in the years 1844-5, in the interior of Australia, from Moreton to Port Essington. Although the collections, unfortunately, were missing, the annotations made upon the map itself, proved that the vegetation of this tract of the interior was analogous to the littoral flora examined by Mr. Brown.—Professor NEGRI and Baron HUGO added some remarks upon the subject.

18th.—Professor PARLATORE read a descriptive notice of his forthcoming work, upon the *Flora Italiana*. It was received with much interest; and the Vice-President, in the name of the section, offered lively thanks to the author, for the boon he was about to confer upon science.—Mr. BROWN presented specimens of fossil silicified plants, referable to the genera *Casuarina* and *Pisonia*, accompanied with observations on their structure, and comparative characteristics.

20th.—Sig. TAVISI presented an important manuscript work, on the *Algae* (which was proposed print entire in the *Transactions*); and also some copies of the first number of his *Nomenclator Algarum*, now in course of publication.—Mr. R. BROWN presented specimens of the silicified fossil, denominated *Triposporites*, accompanied with coloured engravings of various parts, microscopically examined. The affinity was investigated between these and the *Lepidodendron* and *Lepidostrobus*, of which also magnificent specimens were presented.

21st.—Was occupied in visiting the botanic gardens of Padua, and the floral exposition made there this day.

22d.—The Abbot BELESE read a memoir, on the influence which vegetables exercised over the animal kingdom. His conclusions tended to give a warning against the inhalation of air acted upon in close places by any vegetable productions.—Professor LINK expounded his project for a new classification in botany. After reviewing the systems of Linnaeus and Jussieu, he proposed a new systematic key, by which to render more easy the acquisition and practical use of the natural method. In this account is taken of the more evident characters, drawn from all the organs; but the principal divisions of classes are deduced specially from the structure of the trunk, and the disposition of the leaves.

23d.—The principal part of this sitting was occupied in a discussion on the system of classification proposed by Professor Link: after which, Dr. ZANARINI read a paper on fructification, about to be published by him; and Dr. BOLOGNA presented a specimen of a peculiar alga.

24d.—Was devoted to visiting the public and private gardens in Venice.

25th.—Communications were made by Professor LINK on the *Orechidee*; by Professor PARLATORE, on the *Urticaceae Major*; by Sig. TAVISI, on the *Florae*; by Professor ZANTEDESCHI, on the action of the humus rays on vegetables.—Captain KELLINE presented some observations upon the Flora of Venice. The author referred to the faculty certain plants had, of penetrating by their roots into the masonry and rocks, where previously no visible fissure existed, and to other peculiarities of the species of the district. Specimens were presented, and a discussion followed.

27th.—Professor MUSCOUTI communicated some observations of Rabenhorst on the *Orechideae Major*, which damaged the plantations of *Vicia Fabae*, in the plains of Naples.

Various reports of commissions were read; after which, the President again acknowledged the honour conferred upon himself and the section, by the presence of his distinguished foreign visitors, and closed the proceedings.

ZOOLOGY, COMPARATIVE ANATOMY, AND PHYSIOLOGY.

PRESIDENT.—His Excellency Prince Charles Lucien Bonaparte, of Rome.

September 14.—This day's proceedings contained little more than the opening address of the President, and an announcement of future communications.

15th.—After some preliminary conversation, a memoir was read, on the anatomy of the *Lepidocnemis annectens*, by Dr. BUSCONI; the result of this important investigation was, that the said animal is a *reptile*, having a circulation of mixed blood. A discussion followed, and the memoir was voted for insertion entire in the *Transactions*.

16th.—The Prince of CASINO (the President) having announced by letter, that for private reasons he had left Venice, Dr. NAPOLI was elected in his stead.—Papers were then read by Dr. FAZI, on organic reproduction; by Dr. VENGA, on the spleen; and by Dr. FILIPPI, on ovation.

17th.—Dr. NAPOLI read a memoir on a marine production, vulgarly called *regno dei mari*, which the author regarded as a tree-sponge, of a new genus and species.—This was followed by a paper by Dr. DI FILIPPI, on certain new species of reptiles and fishes, discovered in the Western Hemisphere, by the Milanese traveller, Cesario Osculati.—Abbot RESTANI exhibited a specimen of his work upon the action of the acoustic organs. This was discussed by the meeting.

18th.—Notice was read of an unpublished work by Sig. PELLERIGRINO DE STROZELI, on certain points in the zoology of the valley of the Po. The work was considered of much importance, and was proposed to be inserted in the *Transactions*.—Dr. DI FILIPPI described certain characteristics of *Cephalopoda*.

20th.—Papers were read upon the generation of quails, and on certain fishes of the Adriatic; after which Professor ECKER communicated his observations upon the elementary nervous fibre.

21st.—After two brief papers, Dr. ZAMBELLI made some remarks upon the preservation and propagation of leeches. He stated the enormous expenditure suffered by hospitals from their being lost after the first application, and described the means he had adopted to make them serve repeatedly.—Dr. RISOLLI related his researches on the brain.

22d.—Papers were read on a new species of *Nemertines*; on the silk-worm; and on the formation of the liver in fishes.

23d.—Was devoted to an excursion over the Venetian Lagoons, and to Chioggia.

24th.—Sig. HICKEL described a new species of sturgeon, he had lately discovered in the Venetian sea. This communication was followed by others, on ovation, on the silk-worm, and on the anatomy of the teeth.

25th.—The Abbot RESTANI expounded his ideas relative to the classification of the human race, with the object of establishing it upon the consonance of external indications, and physiological conditions.—Sig. HICKEL read a brief notice upon the geographical distribution of the *Ciprini*, noticing the absence of them in tropical America, and their presence, at great heights, on the Himalayas.—Works of importance on Zoology were then presented to the meeting, with remarks upon them.

27th.—Count CONTARINI read a memoir on the *Sarma Aronica*, and presented specimens.—A valuable manuscript work, by the Abbot Chierighini, was presented, and voted for publication; after which the section was closed.

SURGERY.

PRESIDENT.—Professor G. Rossi, of Parma.

MEDICINE.

PRESIDENT.—Professor Giacomin, of Padua.

We are unable to give the proceedings of these sections in full detail. They embraced a great variety of subjects, of which, however, the following were the most important, and excited the principal interest:—

In *Surgery*: The nature of *sciurus*, and its operability in the second stage; the cure of *hydrocephalus*, by compression; on *pellagra*; on the radical cure of external *aneurisms*, by means of electricity; and on *etherization*, with the object of annihilating pain in surgical operations: this latter subject was divided into six different heads of discussion, and occupied several days.

In *Medicine*: A proposed general pharmacopeia of Italian medicine and surgery; discussions on the plague and quarantine, and on a method of cure for *hydrocephalus*, practised in Greece; this cure was thought so important, and so well authenticated, that the section resolved to give it the most prompt and general publicity. On such good recommendation, we translate their document entire. The method consists in the internal administration of the bark of the *Cynanchum erectum*, of Linneus (called by others the *Morinda erecta*), powdered and mixed, in equal quantities, with the powder of a fly, called by zoologists, *Myriola variabilis*. The quantity of each, for an adult dose, should be from 20 to 25 grains, to be taken morning and evening in a diarrhoeic vehicle. Cleanse thoroughly (*deterge*) the wound with tepid water, applying afterwards an irritating ointment, composed of oil, wax, and mastic. Renew the medication for about two months, in order to maintain the suppuration, and continue the internal use of the powder for the whole time.—This recipe was brought by Prof LANDERON, from the monastery of the B. V. Faneromeni, in the Island of Salamina; and the monks, in communicating it, offered a list of 10,000 ducats, many hundreds of which had been seen by themselves. Not a single case of exception had appeared, and the method was so famed in Greece and the Ionian Isles, that Salamina was flocketed to, in all seasons of the year, for relief. The remedy may be administered before or after the development of the malady, with equal success. Prof. LANDERON averred having seen many patients, who could not look at water without spasms and convulsions, gradually become calm, after having taken the first dose—a prognostic of perfect cure.

On the 26th September, a general meeting was held (in which, however, only the Italian members had part), for the purpose of choosing the city in which the tenth reunion should be held. It is usual to make the selection two years in advance, and at the last congress, Bologna was fixed upon for 1848; but his Holiness the Pope, having hitherto sent no reply to the application for his permission, it became necessary to make a new selection, and the choice fell upon Siena. It was resolved to maintain the nomination of Bologna for 1849, and the day after the close of the congress, the consent of the Pope was received. On the 28th, the final meeting was held. Thanks were voted to the various authorities, for the hospitable reception given to the congress. The secretary read a general report of the transactions, and a brief account was given of the principal topics discussed in each section. The president then, congratulating the members, not only on the importance of the proceedings, but also on the admirable manner in which they had been carried on, concluded with a quotation from Dante; and thus ended the *X* Congresso degli Scienziati Italiani.

TRIBUTE TO BRITISH SCIENCE FROM THE SULTAN MAHMOUD.—We understand, that our talented and scientific countryman, Mr. Fairbairn, of Manchester, has been presented with a decoration of one of the Turkish orders, in consideration of the valuable services performed by that gentleman in his capacity as engineer, to several extensive works, undertaken at the desire of the Sultan. It is highly gratifying to observe the liberal feeling which now exists among all the members of the Turkish executive, and much praise is due to M. Dadian, the managing director of the Imperial manufactures, for his zeal in making the above fact known in this country at the earliest opportunity.

On Mining, & the Practical Applications of Geological Science.

PROF. ANSTED'S LECTURES, AT KING'S COLLEGE.

LECTURE IV.—GEOLOGICAL SCIENCE APPLIED TO THE MIXTURE OF SOILS, AND TO DRAINING FOR AGRICULTURAL PURPOSES.

Professor ANSTED prefaced his remarks, upon the above-mentioned highly interesting topic, by some observations upon the formation of soils from certain rocks, which, in his previous lecture, he had but just glanced at; and, first, as to the cretaceous, or chalk formation, which extended from the western coast of England, commanding near Portland Island, in Dorsetshire, and running in a north-east direction, through Buckinghamshire and Bedfordshire, to the east and south-eastern shores. The chalk formation was divided into two kinds; the most important of which, in some respects, was that known as the lower green sand series. This sand, in Bedfordshire, and some other places, was of a very dark red colour, which, by itself, was liable to be very barren; but, when mixed with clay, it made a very rich soil, particularly if the clay contained a proportion of lime-stone. The lower green sand was generally underlaid by the Kimmeridge clay, covered over with the same, which, in Cheshire and elsewhere, formed a stiff clay. In either case, the materials would be mixed with the green sand, and generally produced rich and productive soils—this formation was, therefore, valuable. The upper cretaceous beds contained carbonate of lime in too pure a state to furnish of itself a good agricultural soil. In this way, the chalk could not be considered as affording of itself a rich soil; rather one which was capable of being made so. It was, however, valuable as a growing soil for crops, producing a short fine grass; but the quantity of surface required for the support of a small number of animals diminished its value in this respect very considerably.

He next referred to the tertiary beds, which, in England, embrace only a comparatively small series. The London clay formed the great mass of the tertiary deposits; it was found principally in the neighbourhood of the Thames, and in Hampshire. The London clay was generally underlaid by a more plastic clay, and covered with sand.

This was particularly the case at Bagshot Heath, in a large tract of country near Woking, traversed by the South Eastern Railway; and those who had travelled upon that line would have remarked that it passed for the most part through a poor and somewhat sterile country; though, where the clay was mixed with pebbles and sand, it was capable of becoming looser in its texture, and of being made a more available soil, and, indeed, a valuable one, by means of a great deal of manure. The tertiary beds, however, could not be considered naturally valuable for agriculture, although they were often made so from local circumstances. The tertiary deposits of Suffolk and Essex were called clay, and consisted either of a shelly or marly sand, but generally shelly. This was particularly capable of being made a good soil, when mixed with the clays near it.

There were other beds, which, as geologists, they were bound to consider—namely, those which were known by the general name of gravel, which was a mixture of pebbles and sand, and, being liable to accumulate in every favourable locality, was met with everywhere; it was, in fact, the most abundant of the earth's superficial coatings. The circumstances which induced it were exceedingly various, though mostly connected with the changes effected by running water. Where it had accumulated suddenly, the finest sand would be found mixed with the coarser pebbles; in other cases, it might contain a great deal of clay; and in others, silt. These formed masses, which required always to be considered in regard to their local relations. Gravel constituted not a bad soil for agriculture, as it was readily drained; but it depended on what was near it, or with it, whether it could be made a good one.

All the circumstances connected with the formation and nature of soils geologically must be taken into account when the agriculturist studied that most important subject, the improvement of the soil by admixtures of other soils. This was a question which required the most careful handling, as it was a dangerous thing to play with soils, and equally hazardous to make speculative changes without a good chemical knowledge. To mix soils with advantage, it was indispensable to have a certain amount of that knowledge.

In the first place, it was important, if the soil at the surface was not good, and it was sought to be improved by a mixture, to consider its geological relations, the circumstances under which it was presented, and the way in which it was associated with the surrounding material. The appearance of the surface, the structure of the country, the way the beds succeeded each other, and their inclination, ought to be familiar to the geological agriculturist; and, when it was not so, that knowledge ought to be gained, in the first instance, by sections and models. This knowledge was indispensable; for, without it, they would neither know where to find the material required, nor, when found, be able to fit it. Then, again, it was very important to know under what circumstances certain rocks, known to be valuable, might be expected to occur in nature. For instance, there were certain igneous rocks, of volcanic origin, which were very valuable bases for soils, and equally valuable for mixing with others. These had, probably, been produced during a volcanic disturbance, by which they had been forced up in a melted state to the surface, and had, perhaps, not only filled up a crevice, but had also run over in a sheet like lava. Now, it was quite clear that a person ignorant of its geological relations, wishing to obtain this material, would be puzzled by its departure from the ordinary phenomena of strata, and he might waste both time and money, without succeeding at last in reaching the valuable rock. Volcanic rocks of this kind might thus lie either vertically or horizontally; but it must be obvious, that different operations would be required in each case to obtain them. A difficulty in obtaining them, arising from geological ignorance, was the frequent cause of many valuable veins of igneous rock being neglected, or unknown. The mixture of these volcanic rocks, with others that were stratified, almost always improved the soil; but not invariably, as there were some exceptions to the almost universal rule, of their being easily decomposable by exposure at the surface.

There was one important process in agriculture, often made use of, though not always with similar results—viz., deep ploughing. By this process, the soil at the surface was mixed with that beneath it, and a large proportion of the subsoil brought to the surface. This was sometimes beneficial, and at others mischievous. Unless the origin of the subsoil was known, it was impossible to determine beforehand whether it would be useful, or otherwise. Generally speaking, it was useful; because the soil was ordinarily derived from the subsoil; and if the soil were good, then the subsoil would be good, and it might be mixed with advantage. This, however, was not always the case; and by deep ploughing, a very different and inferior material might sometimes be turned up. How useful, then, must be that knowledge, by which the certain result of such a treatment of the soil might be previously determined. [The learned professor illustrated this point by reference to several diagrams, in which the subsoil was represented as derived from various materials.]

The next part of the subject was the soil as connected with water; and there were two cases, in which agriculturally some geological knowledge on this point was important. One was, when too much water was present in the soil, and it was necessary to get rid of it; and the other was in the way of irrigation, where soils received too little water, or did not retain a sufficiency for the purposes of vegetation. Plants differed enormously adapted for one kind, were utterly unfit for another species—some plants grew well on soils where others would not grow at all. In these questions, then, a consideration of the nature of the crop desired, and the climate in which it had to be grown, was indispensable. Draining, also, was connected with geology—both surface drainage and deep drainage; and the methods of obtaining a supply of water, being dependent on the nature of the earth's crust, were equally connected with that science. Drainage involved one or two other points. When it related to the drainage of large districts, it was a subject of the deepest importance, and then it naturally came more under the head of engineering than agriculture. Both draining on a large scale, and the obtaining of water on a large scale, for the supply of towns and cities, were subjects of the greatest engineering importance; but he intended now rather to consider the general subject with reference to agriculture. In the first place, then, he would touch upon the use of water to plants, which was very simple and easily understood. Plants could not live without it, and they derived it partly from the air and partly from the earth. They also obtained with the water other substances, which were important. None of the plants, which were of value to the agriculturist, would bear a continual exposure to the presence of water. A great deal of mischief resulted from too much water, although injury was also the result of a want of it. This element, as they all knew, came exclusively from the clouds in the shape of rain, or snow. The melting of the snow on the mountains, and the tributary rills produced by natural drainage, formed brooks and streams, and ultimately rivers. Springs came out upon the surface, without being apparently connected with the fall of rain, but they were derived from it. The rain was absorbed by certain beds, and often emerged at a great distance, in obedience to certain mechanical laws. [The formation of springs was then illustrated by reference to a number of diagrams; and, by the same means, Professor ANSTED showed in what manner irregularities of surface (the permeable beds lying in a various direction) produced natural drainage.]

Where there was no natural drainage, the artificial operation connected itself inevitably with the circumstances under which the superfluity of water occurred. One of two things ordinarily would have to be done: they would either have to get rid of the superfluous surface-water, and that which might arise from springs, or they would have to get rid of floods produced by the overflowing of rivers. In either case, the superfluity should be easy or difficult, according to circumstances. But, whatever the nature of the effect to be produced, a knowledge of the peculiar structure of the district was indispensable; and a practical application of geological knowledge would often help to produce a perfect drainage, by taking advantage of the formation of the earth's crust. Where beds of clay, or other impermeable soils at the surface, rested on beds of sand, the upper beds might be drained by means of perforations, unless it happened that the sand, or gravel below, contained an excess of water, in which case the attempted draining would increase, rather than lessen, the water on the surface. This condition of the lower beds would, however, be detected by the geologist by a reference to the natural outlet. Another simple and efficacious mode of draining a district, laid under water by springs, was that of cutting a trench along the strata from which the springs arose on their natural outcrop, and thus conveying the water away. The drainage of the surface, however, and cutting off springs, were very different things, and belonged to entirely different conditions of structure.

The subject of drainage on a large scale was one of great importance; and though the drainage of the few lands was a work generally intrusted to the engineer, rather than to the geologist, yet a knowledge of the principles of drainage was necessary to the agriculturist, if he wished to take a full advantage of the work of the engineer. The principal works of this kind were in England and in Holland. In Lincolnshire and Cambridge-shire, there was a vast tract of land nearly level, composed of a tough clay, quite impermeable to water. It was partially drained by a number of streams which ran across it; but which also drained the higher lands and hills, by which the flat country was hemmed in on the land side. These streams brought down a large body of muddy water, and their tendency was to spread the mud over the low country. When there was a broad expanse of flat land, and a quantity of water thus running over it, the fall being slight, a little thing served to check the passage of the draining streams. In the present instance, the Ouse, the Nene, the Glen, and the Welland, and their tributaries, all ran along the surface of the clay; and if any accumulation of silt were allowed to remain at their mouths, and they could not with facility empty their waters into the ocean, the movement of the stream would be checked. If any foreign body should accidentally fall into the stream, a portion of the bank on the other side of the obstacle would be carried away; and thus, supposing the water ran in a straight line as first, it would, in a short time, deviate from that straightness, and those meanderings, which were admired in other rivers, but which were so fatal in these, would be caused. The more tortuous the course of the stream became, the slower would be its pace, and the less effective its power as a draining agent. At the same time, the gradually increasing accumulation of silt at the mouth would stop the ocean out, and the flush of water from the river would be thrown back upon the land, and thus the low lands would eventually become a swamp. All this, however, might be easily counteracted by keeping clear the streams, and removing the obstructions at their mouths; but, supposing that the natural drains, the rivers, were not sufficient to carry off the whole surplus water, some further operations were necessary, such as artificial cuttings. One of the results of draining being to make the land lower, embankments to keep out the sea were required, and steam-engines, to pump the water from the drains over the embankments into the ocean. The selection of the line of these drains, and the carrying into effect the plans suggested by the circumstances, were operations which had to be performed by the engineers.

Of the few districts of England, a great deal had already been done towards their drainage—badly at the commencement of the undertaking, but still a great deal also had been well done, and whole districts were now

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—We are getting on well with the Slob shaft, and expect to have it completed to the 18 fm. level in 10 days, when we shall be able to resume driving the 18 fm. and 12 fm. levels east and west. The lode in the winze behind west end 18 fm. level, is without alteration—worth about 8d. per fm.; the stopes east and west of it, are also just as last reported; we have had a good discovery of ore this week in a pitch in back of the 18 fm. level—the lode in it is about 2 ft. wide, and worth over 30s. per fm.; we have but just cut it, consequently the ground opened on it is short; the stopes under the same level (Doyles) are also a little improved—worth about 12d. per fm. The back of the 18 fm. level is very good for a few fathoms—worth about 16d. per fm.; but the whole of this back is working on tribute, and worth about 6d. per fm.; the stopes under, on middle lodes, are much the same, worth from 6d. to 8d. per fm.; the lode in the adit end is large, composed of white iron, and producing fine stones of lead. At Nangles, we have no change from last week. We hope to ship a cargo of lead, of 40 tons, about the 10th of November.—October 30.

BEDFORD UNITED.—At Wheal Marquis, the lode in the 90 fm. level east is worth 80s. per fm., and the south lode in this level west is worth 20d. per fm. The lode in the 80 fm. level east is 3 ft. wide, and still worth 15s. per fm. In the 70 fm. level east, the lode is 2½ ft. wide—good saving work. There has been no lode taken down in Harvey's winze, in this level, nor in Hooper's rise, in the 58 fm. level. At Liscombe, there is no alteration. The lode in the 25 fm. level, east of the south engine-shaft, is 2 ft. wide, and in the adit level east, the lode is 1 ft. wide, composed of spar and mundic, with spots of ore in places. We weighed at Norwellham, on Friday last, August ores, 117 tons 6 cwt., and sampled September ore, computed 115 tons 10 cwt.—Nov. 2.

CALLINGTON.—The lode in the 125 fm. level, south of Johnson's shaft, is small, producing silver-lead ores; in the north end the ground is improved, and the lode looking more promising. In the 112 south the lode is 1 ft. big, composed of carbonate of iron and quartz, intermixed with silver-lead ores; in the north end we are opening tribute ground. In the 100 fm. level north the lode is 1 ft. big, work of a coarse quality; the south end, in this level, and the 90, is suspended, the men being removed to hole the 80 north to the north mine. In the 90 north we are opening very good tribute ground. At the north mine, in the 100 fm. level south the lode is producing good work, the back will work at a low figure; in the north end the lode continues to produce work of a moderate quality, the ground is of a favourable character—operations are suspended here, the air being deficient; in the 90 south we are opening tribute ground. In the 70 north we have a portion of the great cross-course come in with the lead lode, which is rather poor; in the rise, in the back of the 70 east, the lode is worth 15s. per fm.; in the end it is producing copper ores, 3 ft. wide; we have sampled about 80 tons of ores from here. At Kelly Bray, the water is in at the 35 fm. level. In the 25 west the lode is 2 ft. wide, producing copper ores, looking more promising.—Nov. 1.

COATLITHE HILLS.—In the beginning of this week, we explored about 8 fms. of the old level, when our progress was obstructed by an old shaft from the surface having been filled, and which must be cleared up, before the extent of the old level can be ascertained. I am of opinion, that but little has been done further in the hill; and besides, there are strata below us, in which veins are generally productive, that have never been explored. I consider that our prospects are rather improved than otherwise. In the commencement of this week, I set four men to drive westward from A shaft, toward the rise in the back of the horse level, and they have driven about 9 ft.: I expect they will cut a communication in a fortnight.—October 30.

CUBERT SILVER-LEAD.—We have this day held our public setting for November, and have set 11 pitches employing 28 men, and 5 tuft workers for 20 men. The ground in the engine-shaft still continues hard. We have sunk below the 30 fm. level, 5 fms. 5 ft. In the 35 fm. level west, the lode is 3 ft. wide, but hard—worth about 1 to 1½ ton of lead per fm.; in the eastern end, at this level, the lode is 2 ft. wide, composed of spar, mundic, and stones of lead—a very promising end. In the 25 fm. level west, the lode is about 10 in. wide, with good stones of lead—worth about one-fourth of a ton of lead per fm. The 15 fm. level west is a kindly end—lode about 1 ft. wide, and worth half a ton of lead per fm.—October 30.

EAST ALVENNEY.—The lode in the shaft continues as good as last reported. According to Capt. Hollow's report, if we sink the shaft 3 fms. per month, at a cost of 8d., we ought to return 150d. worth of tin per month from that operation alone. I enclose you a letter, this day received, from Captain Hollow, also the return by the assay master, with the piece of tin, the produce of the sample taken by Captain Hollow, from the mine:—"Trelowith House, Oct. 30th.—Dear Sir.—I have assayed a sample of the tin you sent me, which produced 14, beautifully refined, worth about 37s. per ton.—THOMAS ROUSE."—Lelant, Nov. 1.—Dear Sir.—Herewith you have the produce of the stone of tin I brought from East Alvenney. This produce far exceeds my expectations; it is one of the best samples of fine tin I have ever seen.—W. HOLLOW."—We are still sinking on the middle lode, to get good backs to stopes; and have not yet determined whether we shall sink on the new lode, or drive a level from the middle lode, when we get further down—we must see more of its underlie before we determine.—Nov. 1.

EAST CROWNDALE.—The ground in the cross-cut, driving in the 47 fm. level, to cut the north lode, still continues hard and spare to drive, the ground being much intermixed with branches of spar, which contains copper ore and mundic, and, from the indications, it appears as if we are close upon the lode. The lode in the adit level, driving west at Rix Hill, still keeps to its size, although at present it is poor—composed of peach, killas, mundic, spar, capel, and spots of tin. I am glad to state, that the lode in the shaft sinking below the adit level at Rix Hill, is very much improved since my last report, both in size and appearance, and is now upwards of 5 ft. wide, composed of capel, peach, killas, spar, mundic, and tin; we are saving all the lode, as it is tony throughout. In the cross-cut south, we have not as yet met with the middle lode; the ground is killas, and favourable for driving. Our engine and pit-work all in good order.—October 30.

GREAT MICHELL CONSOLS.—The lode in the sump-winze, driving the past week, is much improved, being full 5 ft. wide, 18 inches of which is very good, and worth 25s. per fm. In the 35 fm. level, west of the sump-winze, the lode is very large; the part now being carried is 4 ft. wide, containing abundance of strong mundic, with black and yellow ores intermixed throughout.

HOLMBUSH.—Nov. 2.—The ground in the diagonal shaft, sinking below the 120 fm. level, is still of a favourable character, being white killas. The ground in the 120 fm. level, south-west of the slide, is likewise favourable for driving; we expect to drive 4 fms. more to intersect the counter part of the lode here in that direction by the slide. The lode in the 110 fm. level south is 2 ft. wide, composed of soft spar, flockan, and stones of rich silver-lead. The lode in the 100 fm. level south is 5 ft. wide, composed of spar, with lead interspersed throughout, worth 6d. per fm.; the pitches in the back of this level are producing a fair quantity of lead. The lode in the 90 fm. level south is 20 in. wide, composed of flockan and stones of lead. We weighed at Calstock Quay, on Thursday last, August and September copper ore, 82 tons 1 cwt. 8 qrs.; and shall sample on Saturday next (computed) 15 tons of rich silver-lead ore.—Nov. 3.—We have a tribute pitch in the bottom of the 110 fm. level, which is greatly improved within a day; the present depth, where the improvement has taken place, is 6 fms. below the 110, and from the great cross-course east to a smaller one; the great cross-course is nearly perpendicular, and the smaller one is underlying east 3½ ft. in a fm.; the top of the course of ore is 3 fathoms long, and lengthening as it goes down (agreeably to the underlie of the cross-courses), as stated above, and 2 ft. wide, worth from 30s. to 40s. per fm.; we are of opinion this is the counterpart of the course of ore we had in the 120 fm. level, west of the cross-course, and that it is standing south of the old level, driven some years since in the 120; we shall dial it to-day to prove it as far as seen, and I will write you again by to-morrow's post on the subject. I yesterday very closely examined the old level, east from the great cross-course, to cross-cut opposite Hitchens's shaft, and could find no lode in the level—therefore, I am of opinion we shall find it to the south; if so, this is a very important point, and will guide us in our operations in the 135, and below. We have put four men to drive south from the old level in the 120, a little east of the great cross-course, on the faith of it; the ground is moderate, and we shall quickly prove it. Mr. Henry Thomas will be able to recollect when I broke some good stones of ore in the 120, about 6 ft. west of the diagonal shaft, on the south side of the level; we had some ground taken down from that part yesterday, where several branches of ore are to be seen, each taking a south-westerly direction, and, no doubt, has made the ore above.—Nov. 4.—Agreeably to promise, I beg to inform you, yesterday we carefully dialled the workings of the tribute pitch in the bottom of the 110 fm. level, east of the great cross-course, taking the direction, underlie, &c., in connection with the 110 fm. level, to east as the diagonal winze, and the 120 fm. level, west to the great cross-course, and find the lode, where the improvement has taken place, stand ing between 2 and 3 fms. south of the old level in the 120; should the present underlie continue, which is very likely, indeed, to be the case, as it is within 3½ fms. of the back of the 120 fm. level, and a course of ore 2 ft. wide, just exactly like the one Mr. Henry Thomas saw in the 120 fm. level, west of the great cross-course, and which I have no doubt in the counter part, or else there must be another part still further south; seeing the cross-course has had little or no effect in heaving the lode in this level as it had above, in a few days great light will be thrown on this subject; this is of great importance in connection with our next level, and we are quite prepared, when this is proved in the 120, by the cross-cut now driving south by four men, to commence driving a 183 fm. level west, leaving there near 2 fms. back for a fork, instead of driving a 185 fm. level, as was first thought of, that we may say our position is a good one, to reach this shoot of ore, should it last down.

KIRKCUDBRIGHTSHIRE.—The lode in the 40 fm. level end west is 4 ft. wide, but poor—set to six men, at 3d. 10s.; also set to four other men, to drive

north into the counter, at 4d. per fm.; at this point, we have some branches of this level, continue to yield fair quality of lead—set to two men, at 2d. 10s. per fm.; the second stopes produce about 1 ton per fm.—set to four men, at 2d. 15s. per fm. The lode in the 30 end continues very large, producing 1 ton of lead per fm.—set to six men, at 4d. 10s. per fm. The first stopes in the back of this end produce about 1 ton of lead per fm.—refused at 3d. per fm. The rise in the back of this level being held to the 20 level, we have set two bargains to stop, one east and one west of said wins, to four men in each bargain, at 2d. 15s. per fm.—lode producing about three-fourths of a ton of lead per fm. The lode in the 20 fm. end is small and poor—set to six men, at 3d. 10s. per fm.; the old stopes in the back of this level, refused at 3d. per fm.; set new stopes in the back of this level to four men, at 2d. 15s.; also stopes in the bottom of this level, further east, where the lode produces about 2 to 1 ton of lead per fm. Also set to four men, to stop under the 20 fm. level, at 3d. per fm., where the lode produces nearly one ton per fm. The shaftmen have not yet finished the fixture of the railroad from the 40 to the 50 fm. levels, nor have we succeeded in finding the lode at Keith's.—All the halvans are this day set to Patrick Gates, at 12s. in the 11s., until next setting day.—Oct. 30.

Lewis.—The lode in the engine-shaft, sinking below the 60 fm. level, is 2½ ft. wide, producing some tin, and very promising. The lode in the 60 end east is 8 ft. wide—worth 7s. per fm., and very kindly; the ground in the cross-cut in the same level, south from sump winze, is very favourable. The lode in the 50 east is 2½ ft. wide—worth 3d. per fm.; the lode in the 50 east, on south branch, is 8 in. wide—worth 7s. per fm.; we have three pitches in the back of this level, working at an average tribute of 3d. 6d. We expect to see this lode in the 60 fm. level, the end of next month.—October 30.

MENDIP HILLS.—Our different operations in the slag department continue to progress very favourably, we have part of the rail irons and chairs on the mine, and the carpenters are busily engaged laying them in their places, fixing sleepers, &c.; the masons are getting on as fast as possible with the walls of the engine and boiler-house; and the weather prove favourable, I hope to see this part of our work accomplished in a short time, when we shall immediately commence with the furnaces and flues, the foundations of which we have begun excavating. The lode in the 38 fm. level, south of shaft, has greatly increased in size since my last communication, being more than 5 ft. wide, composed of flockan, soft spar, and iron, with a quantity of water issuing from different parts of the end; the lode in the winze, sinking below this, is not quite so large as it was last week, composed of quartz, flockan, and particles of lead in places.—Nov. 1.

TRELEIGH CONSOLS.—At Christoe's shaft, below the 110 fm. level, we are sinking in the country, in favourable ground. The 110, south-east of ditto, will be driven on the cross-course in search of more lode, the lode in the 110 east being very small and disordered; in the 110, west of ditto, the lode is in two branches, 6 in. wide, each, but very little mineral. At Garden's shaft, below the 100 new, the sumpters will enlarge the plat, put in penthouse, &c., before they can commence sinking the shaft. In the 100, east of ditto, the captain's price is 5d., the lode is 2 ft. wide, rather of a promising nature, but not much ore; in the 100, west of ditto, the lode is 2 ft. wide, but little mineral. In the 90, west of ditto, the lode is 2 ft. wide, with a small quantity of ore, not to value; in the winze, below the 90 east new, the lode is 3 ft. wide, worth 30s. per fm.—this is from the knowledge we have when driving the level over it. In the 80, west of ditto, the lode is 2 ft. wide, worth 10s. per fm. In the winze, below the 70 west, the lode is 2 ft. wide, producing stones of ore only; the end is suspended till the winze is holed. In the 60, west of ditto, the lode is 2½ ft. wide, worth 5d. per fm., with a very kindly appearance. The new shaft for Wheal Parent is sinking in the country. In the adit cross-cut, ditto, we are driving northwards to the new shaft. The adit end is suspended for the present on the lode. In the winze-shaft, below the adit, the captain's price is 4d. 10s. per fm.; the lode in the winze is 2 ft. wide, with good stones of ore.—Oct. 29.

WEST WHEAL JEWEL.—In the 57 fm. level, east of Williams's cross-course, on Wheal Jewel lode, the lode has not been taken down in the past week; in the 57, west of ditto, on same lode, the lode has not been taken down in the past week. In the 30 fm. level, west of Quarry shaft, on Tolcarne tin lode, the lode is 18 in. wide, worth 4d. per fm. In the 12 fm. level, west of Quarry shaft, on the same lode, the lode is 1 ft. wide, unproductive. In the deep adit, west of Quarry shaft, on the same lode, the lode is 18 in. wide, worth 12d. per fm. In the shallow adit end, west of Quarry shaft, on the same lode, the lode has not been taken down in the past week. In the stopes, in the bottom of the adit, east of Pryor's winze, on the same lode, the lode is 5 ft. wide, worth 45s. per fm.—Nov. 1.

WEST WHEAL MARIA.—The eastern engine-shaft is down below the 38 fm. level, about 10 ft., the lode in which is about 3½ ft. wide, producing good stones of ore; in this level west the lode is about 4 ft. wide, the middle portion of which, for about 6 in. wide, is producing splendid ore. In the western engine-shaft the sumpters have been engaged cutting bearer holes, putting in bearer and cistern, and fixing 8-in. lift, which we hope to complete by to-morrow. In the 54 fm. level, east of this shaft, the lode is about 5 ft. wide, with little ore in places. In the cross-cut south, in this level, there is still pretty much water issuing out of this end, which I think is a very good indication that we are not far from a lode or branch.—Nov. 2.

WHEAL ADAMS.—We have resumed rising in the 50, and have reached the jack lode, which is 4 ft. wide, producing 5 tons per fm. and a ½ ton of lead ore. The eastern lode is about 5 ft. from this point, and it will be intersected this week. The stopes in the back of the 50, on the quartzose lode, are worth 9d. per fm., and those in the back of the 40 are worth 5d. per fm. The stopes in the 18 fm. level are producing a small quantity of copper and lead ores. We have cleared the attole to the 8 fm. level, the ground in which will be examined to-morrow. Ten tons of blende having been added to the parcel at the sellers, the whole was weighed off on Tuesday, the 26th Oct., and shipped in the Venus, on the 28th—viz.: 118 tons 4 cwt. dry. The parcel of lead ores has been purchased by Messrs. Sims, Willyams, Nevill and Co., at 9s. 5d. per ton.—November 3.

WHEAL MARY ANN.—Barratt's shaft is sunk 4 fms. under the 30 fm. level; the lode here is 8 ft. wide, and worth 16d. per fm.; but the sinking for the present has been suspended, on account of an increase of water—however, we hope to resume it shortly. The lode in the 30 fm. level south, I am happy to say, is very much improved since the last report; it is now 2½ ft. wide, and worth 16d. per fm.—this, I consider, an important discovery. Pollard's shaft is sunk 2½ fms. under the 15 fm. level. The 15 fm. level, south of Pollard's shaft is as was last reported. The stopes are all looking well.—Nov. 1.

WHEAL TRELAWNEY.—Phillips's shaft is sunk 2½ fms. under the 52 fm. level. The ground in the 52 fm. level north is favourable for driving; the lode will produce a ton of ore per fm.; we have commenced rising in the back of this level, against a winze now in course of sinking under the 42 fm. level, where we have a good lode; the 52 and south is worth 22d. per fm. The 42 fm. level north is favourable for driving, and worth 12d. per fm.; this level south is hard, and worth 10d. per fm.; the winze sinking under this level is worth 12d. per fm.; the stopes in the back of this level are producing a fair quantity of ore. In the 32 fm. level north the lode is at present small, worth 6d. per fm.; we have commenced sinking a winze under the 32 fm. level north, where the lode is worth 6d. per fm.—here we look for an improvement daily. The stopes in the back of the 32, 22, and 12 fm. levels are much as usual. Trelawney's shaft is now sunk 22½ fms. under the 22 fm. level, where we have commenced cutting a plat, and intend to drive a cross-cut to the lode, which is about the depth of the 42, at Phillips's shaft, and hope to communicate it with that level in about four months. We are still extending the 22 cross-cut east, which is in clean killas ground. Our appearances at Vivian's are similar to my last report.—Nov. 2.

FOREIGN MINES.

IMPERIAL BRAZILIAN MINES.—Gongo Seco, August 23.—In the back of the 14 fm. level, west of Harri's shaft, we have had the very best sample I ever saw here, and have taken out a few "hat-caps" of work for the washing-house, but it is rather of inferior quality. The other parts of the mine are unaltered in appearance. At Bananal, we have, since my last, sunk about 2 feet on the gold vein, in the bottom of Thomas's (diagonal) shaft; but, though it continues to be spotted with gold, and to give good work, it is neither so large, nor so productive, as it has been; its appearance is, however, still highly encouraging. This shaft has been sunk about 10 fms. below the large pit; and the lift or pumps is not only quite as long as it can be safely made, but the drought has so diminished our surface water, the wheels have not power enough to draw the mine deeper, until we either bring in our new water-course (which will be done in about a month more), or until we get rain; we are, therefore, obliged to suspend our work on this vein, and to drive southward, on the course of the jacutinga, towards a second similar vein, which is but a few feet distant, and was productive at a shallower level. Walker's shaft is now drained by a pump, and goes on rapidly; within a week we shall have two parties of men driving at the (new) deep adit level from it; at the same level, we have three parties employed in other spots, and we have commenced a small shaft, which will enable us to set two other divisions in a few days. The pit for the new water-wheel has been commenced, and every possible exertion is being made to get it in order shortly: nothing, however, will enable us to work it until long after the rains have set in.

P.S.—Bananal, August 24, 6 p.m.—But little has been done to the vein since the foregoing was written, and I have nothing to add to what has been already said.

Gold Workings.

August 13 to 21—From Gongo.....	10 2 10 15 0
13 to 20—From Bananal.....	4 4 12 0
Total	15 7 3 8 0

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

CARON UNITED.—From the 28 east we had some tolerable good stones of ore brought up last night; the lode is still improving, and I trust it will make a much better appearance when the branch falls in with it.

HERBOSCOMBE.—There is a large lode here in the 12, improving, but still poor; it contains some occasional stones of ore, and vugs of mundic.

HENDONFOOT.—We are doing well here, and have made an important dis-

covery in the 50 south; we had driven altogether about 40 fms. on a poor lode and were induced to resume driving by the success in the 72; accordingly, upon driving just over the ore ground, we have met with what appears a good lode; one hole yesterday was blasted in it, and produced a splendid downfall of ore. You should understand that the 60 is a great deal behind, and we are led to hope that the course of ore in the 70 may extend all the way up to the 50.

COOMBE TIN MINING COMPANY.

lastly, in the same level (65), about 90 fms. south from the shaft, and at the extreme point of the cross-cut, a level in driving east on the course of the lode, where its size is about 2 ft., which consists chiefly of peat and spar, but at present in a rather confused state from cross branches. The ground about this lode is of a more favourable character than either one before discovered in the said level. There are now four pitches in operation, the whole of which are on E 3 lode.—Ores to be sampled in the early part of the ensuing month, from 28 to 30 tons."

WEST CARADON.—At a two-monthly meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on the 21st ult., the accounts were examined and passed, from which it appeared, that the costs for July and August amounted to 2758L 18s.; rates and club, 74L 18s. 3d.; merchants' bills, 107L 1s. 8d.; sundries, 24L 17s. 2d. = 3929L 10s. 1d.—By ores sold (less dues), 4579L 1s.; materials, 44L 3s. 10d. = 4623L 4s. 10d.: showing balance in favour of adventurers, 638L 14s. 9d.; which, added to balance from last account, 1686L 12s. 4d., makes 2383L 7s. 1d., from which deduct dividend, 764L leaves balance to be carried forward in favour of adventurers, 1612L 7s. 1d.—It was then resolved, that a dividend of 50s. per share be made, payable at the Devon and Cornwall Bank, on the 1st November.

WEST WHEAT FRIENDSHIP.—A meeting of adventurers was held at the Bedford Hotel, Tavistock, on Monday last, the 1st inst., when it was resolved, that the purse be authorised to proceed in any way he may deem most advisable for the recovery of all arrears of calls; that the accounts, not having been audited, in pursuance of a resolution of the last meeting, such to be complied with, without further unnecessary delay; and that the next meeting be held on the first Monday in December next, unless in consequence of any new discoveries the purser shall convene an earlier meeting.—The following report was read, and it was resolved that the same be received, and form part of the proceedings of the meeting:—"The engine-shaft is now down to a depth of 43 fms. from the surface, at which point we have the main lode, of the character and quality of which I am happy to be enabled to speak in most encouraging terms; the lode altogether, capel included, is 12 ft. wide, bearing its course east and west, with a declination to the north; being, in such respects, precisely similar to the great, and for the last 40 years exceedingly profitable, lode of Wheat Friendship, which is distant about a mile only herefrom. Our most promising appearances are presented on the foot-wall in the leader of this large lode—this leader is about 2 ft. wide, composed of very strong kindly capel, spar, and mundic, intermixed with rich yellow copper ore; altogether, these indications are precisely similar to those of the great mine just referred to; the channel of ground also is precisely similar. At this part of my report, and in corroboration of the appearances of this lode at the important point of operation referred to, I beg to call your attention to the substantial evidence now on the table in the shape of produce from the lode, this day sent in from the mine; upon such appearances and evidence, I am justified in the conclusion, that we shall begin to realise, in part, our expectations at the present depth; and, moreover, that upon a little deeper trial of the concern, such lasting success will be realised, as will be quite equal to our anticipations. It only remains for me to add, that we intend to make the most effectual trial of this, the main, and most promising, lode as yet met with, by driving a level west on its course, which will be hereafter referred to as the 43 fm. level. In addition, it is intended to resume the sinking of our engine-shaft at the earliest possible moment—that is to say, so soon as the proposed 43 fm. level shall be sufficiently far advanced to admit of it. In the carrying out such important objects, I feel great confidence in looking forward to satisfactory results; and cannot conclude without congratulating the adventurers on the greatly increased chances of success which the concern holds out to them since the important improvement in the engine-shaft, as referred to in the foregoing remarks and observations."

WHEAL BUCKETS.—A meeting of adventurers was held at the mines, on Tuesday last, the 2d inst., at which the accounts were presented, showing—Labour cost for July, August, and September, 1524L 13s. 6d.; not divided last account, 17s. ; merchants' bills for July and August, 556L 18s. 10d. = 2082L 9s. 2d.—By sales of copper ores (less dues), Aug., Sept., and Oct., 1387L 1s. 2d.; timstuf sold, Oct., 102L = 1489L 1s. 2d.—showing loss of 593L 8s. 2d.: add September bills, estimated, 175L = 768L 8s. 2d.—It was resolved, that the loss 593L 8s. 2d. be divided.—A correspondent, referring to this account, says—

"In consequence of the levels of late having been poor, is the cause of present loss. It is stated by the agents, that there is 1000 tons of copper ore discovered. I think you will agree with me, that if they have 1000 tons in reserve, it is a bad time to work at a loss. The list of defaulters, for calls made up to end of June, amounts to 864L 9s. 5d., and which, I may add, is the principal cause of my wishing a reduced expenditure for the future."

WHEAL GRACE.—At a meeting, held at the offices of Mr. Bridgeman, on the 1st November—at which were present Messrs. Bridgeman, Rundle, Flamanck, Robbins, and Mitchell—the relinquishing of certain shares, by Mr. J. H. Hitchens and E. H. Scobell, was agreed to; and it was resolved, that Mr. Rouse, of Wheat Friendship, be requested to make the valuation of the materials—that the defaulters be written to, informing them that, unless their calls were immediately paid, legal proceedings would be adopted—and that the following agent's report, which was read to the meeting, be received and entered in the cost-book:—"Since the last general meeting of the adventurers, the lode has been cut through in the 18 fm. level, and extended on its course about 17 fms. east and 6 fms. west; the appearance of the lode in this level has not been very encouraging—being rather small and poor; the eastern end, at the present time, has a more favourable appearance; and, I should say, likely to produce lead in a few fathoms more driving. Some doubts were entertained at first whether there was not another lode still to the south of this level; but looking at the direction the lode is now taking, going east, it is likely to be the same lode worked on in the level above; but this will be ascertained by extending the level some fathoms further east, where a rise should be put to communicate with the 9 fm. level, where, I am informed, there is some good grey ground—the place, as I understand, which induced you to erect the steam-engine. There appears, from the plan, that about 6 fms. more remain to be driven to intersect the point of a south lode, which produced the lead in the level above, and where it is probable lead may be found."

WHEAL HOPE.—At a meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on the 21st ult., the accounts were presented, showing—Call made at last meeting, 100L; balance of last account, 42L 16s. 11d. = 142L 16s. 11d.—Labour cost for July and August, 60L 4s. 5d.; materials, 6L 14s. 2d.—leaving balance in favour of adventurers, 75L 18s. 4d.—The accounts having been examined and passed, it was resolved—"That the mine be suspended until another meeting of adventurers be held, unless some discovery be made previous to the next setting day (6th Nov.); and, that the purse be directed to take legal proceedings against any adventurers who do not pay their arrears of calls within a month from this date."—The following report was presented:—

"Owing to the very dry weather we had for several weeks, we were obliged to stop the bottom level, the water being in, in consequence of the surface water not being sufficient to keep the wheel at work. All the men were put in the end on the new lode. We have not yet intersected the east and west lode in this end; but, according to its direction, where driven on westward, we ought to have met with it before now—we, therefore, hope we are very near it. We have had stones of good grey ore in the new lode, but nothing to save. We expect the water will soon be out from the 60, when we propose to cut into the lode, which has not been done for the last 10 fms., as we have been driving by the side of it. If there is no improvement in the lode, we propose to suspend that part of the mine."

WHEAL MARY CONSOLAS.—At a meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on the 22d Oct., the accounts were presented, showing:—Received for tin, 1198L 9s. 11d.; materials sold, 56L 13s. 1d.; call made at last meeting, 512L; balance of last account, 109L 13s. 5d. = 1876L 18s. 5d.—Labour cost for July and August, 1167L 10s.; materials, 44L 0s. 5d.; lord's dues, 74L 16s.—leaving balance in favour of adventurers, 195L 12s.—The following report was then read:—"In the past two months, we have had 10 men employed sinking and stoking the bottom of the 60, on the old lode, west of the engine-shaft; in stoking it 6 ft. deep and 15 fms. in length, it averaged 2 ft. wide, worth from 6s. to 7s. per fm. The water, however, is too powerful to sink any deeper by a hand pump, and we recommend the sinking to be resumed by the aid of flat-rois attached to the main rod of the engine, to explore 10 fms. deeper, as we think it very likely to improve in depth. The 50 fm. level has been extended on the south lode 8 fms. east, and 4 fms. west; for 8 fms. of this distance the lode is from 3 to 4 ft. big, and contains a branch of ore from 1 to 2 ft. wide; the eastern end is at present poor, but in the western end there is still a branch of ore 6 in. wide. In the 25 driving east, the lode is 4 ft. wide, and contains a little ore. We have intersected a large lode in the 25 cross-cut north, which contains a little tin—this lode has not been extended on; we have driven 3 fms. west on two of the main branches mentioned in last report, in which distance the branches have united, and now form one lode in the end, 3 ft. wide, containing capel, quartz, mundic, and a little ore; and, although poor at present, it has a very kindly appearance. The 70 cross-cut, driving south towards the tin-jode, is now extended 95 fms. beyond the south copper lode: we are informed, that a quantity of tin was raised from the back of this lode about 53 years ago, over where the cross-cut will intersect it; if our information is correct in pointing out the place, there is but a short distance to drive before we shall intersect it, but we cannot be sure of this, as the old workings are filled in and the surface cultivated. The 35 fm. level has been extended on the tin lode 15 fms.; in the western end it is 24 ft. wide, and contains a quantity of mundic and stones of tin—a very kindly lode; in the eastern end it is about the same size, but coarse in quality. We have communicated with this level by a winch from the 25, and have sunk another winch 13 fms. to the east of it, 5 fms. deep; in the first winch the lode held good to within 2 ft. of the back of the 25, and in the second winch to within 6 ft. of its present bottom; we shall resume the sinking of the shaft below the 25 immediately, to explore the lode at a greater depth. The 25 fm. level has been extended 45 fms., 20 fms. of which in a good lode; in the present end east, approaching Wheal Sisters, the lode yields saving work, but not rich; in the western end it is poor. We have also erected an eight-head stamp, attached to the drawing machine wheel, to stamp when not drawing—this will be about three-fifths of the time. We calculate to return from 25 to 30 tons of tin in the present two months. There are 16 men employed on tribute in the old mine, who, we expect, will raise 40 tons of copper ore in two months, exclusive of the ore from the ends."

WHEAL SHERMS.—At a meeting of adventurers, held at Mr. R. Esterbrook's, Liskeard, on the 21st ult., the accounts were presented, showing:—"Received for copper ore, 561L 10s. 10d.; balance of the last account, 398L 0s. 10d.—

959L 11s. 8d.—Labour cost for July and August, 776L 14s. 8d.; materials, 18L 2s. 7d.; lord's dues, 88L 12s. 8d.—leaving balance in favour of adventurers, 18L 2s. 7d.—The accounts having been examined and passed, a call of 12 per share was made—it was also resolved:—"That the terms offered by W. Glencross, as per draft license now produced, for breaking the surface of the Quillet Field, be accepted, and that a deed for the same be immediately prepared: and that a license for two years of the eastern part of Wenmouth, as an addition to Wheal Sisters' seat, also offered by W. Glencross, be accepted, the draft of which is also now produced.—The following report was presented:

"Since the last meeting the lode has been cut in the 70 fm. level, and extended upon 8 fms.; in both ends it is about 2 ft. big, but poor. In the 60 fm. level west it is 20 in. wide, composed of pyrite and quartz, with rich ore intermixed—a very kindly lode, indeed; in this level east it is about 8 ft. wide, composed of quartz, capel, and mundic, spotted with ore. The other ends on this lode are suspended. The 80 fm. level cross-cut, driving south towards Mary Consols tin lode, has been driven 14 fms., leaving about 20 fms. more to intersect it. The 40 fm. level cross-cut, driving towards the same lode (90 fms. east of the cross-cut in the 30), is driven 16 fms., leaving about 18 fms. more to drive to reach it; this lode in Mary Consols being very productive, we are pushing these cross-cuts with all possible despatch. The north lode in the 20 fm. level west is about 6 ft. wide, composed of gossan, quartz, capel, and a little black and grey ore; this end is approaching towards the great cross-course, and parallel to the course of ore on the south lode, where we may anticipate an improvement. We have 28 men employed on tribute, and calculate our next sale of ores for the present two months will be about 120 tons."

LIABILITY OF MINES TO THE POOR-LAW ASSESSMENT.

A correspondent at Redruth sends us the following statement, in regard to the operation of the present Poor Law, as to the assessment of poor rates on mining property:—"Much dissatisfaction has begun to be expressed in some of our mining parishes respecting the law by which our mines are exempted from liability to parochial assessment, and we believe that in some quarters an intention exists of bringing the subject under the notice of Parliament in the ensuing session. As the law at present stands—mines, mine buildings, and machinery, are exempt from such assessments, but not that portion of the produce which has been usually reserved by the landowner as his dues. The dues of mines have therefore been hitherto rated; and, although in many cases they have constituted a very small portion of the profits a mine has yielded, the parishioners have uncomplainingly submitted to the grievance; but, it appears, that an expedient has been contrived, by which even this small proportion of the public burthen may be evaded, and the entire cost of maintaining the poor, of making and repairing roads and bridges, and of all the apparatus of constables, police, court-houses, and gaols, for the protection of life and property, or for the detection and punishment of crime, be thrown on the agricultural, the trading, and the labouring classes. This contrivance is the substitution of a money payment as a rent, instead of the usual dues, and such a commutation has now been so extensively made, that it is thought right the whole subject should undergo revision, and that, if it can be, the justice of the privilege of exemption should be satisfactorily shown. At present there is a growing conviction that the exemption is wholly unjust, and inexpedient, and that it is one of the most oppressive instances of protection by which a supposed advantage is conferred on some one particular interest, at the expense of every other. The peculiar nature of mining operations, and the manner in which the wages of the mining labourer are paid, are, without doubt, very fruitful sources of parochial expense; and the grounds on which our mines claim exemption from burthen, which they unquestionably do much to aggravate, ought to be very strong to warrant a continuance of the privilege; and what grounds they have, which would not as properly support a claim for like exemption on the part of any other interest, we confess we do not know. The following memorial on the subject has been addressed by the Redruth Board of Guardians, to the Poor Law Commissioners, and, should not a satisfactory answer be received, it is intended to solicit the mining parishes generally, to join in petitioning the Legislature for an alteration of the law:—

To the Poor Law Commissioners.

The Redruth Board of Guardians beg respectfully to represent—"That the facility with which young men may occasionally obtain employment in our mines at equal wages with older persons, operates to a great extent in promoting early and imprudent marriages, and a rapid increase of a poor population.—That the employment of the miner is, for the most part, as respect the wages he is to receive, quite a speculation, and that the impossibility of knowing, before his pay-day, what his earnings are, added to the unavoidably long intervals of payment, is found, in a large majority of cases, unfavourable to habits of domestic economy, and that it, therefore, generally happens that in cases of unproductive speculation, the mine is necessarily driven to the parish for assistance.—That, in consequence of the peculiar nature of mining operations in Cornwall, the mining labourer is exposed to diseases and accidents which generally induce a premature incapacity to support himself and family, and a greatly diminished longevity, in consequence of which great numbers of widows and young families are yearly thrown on the parish for support.—That our constabulary force is largely engaged in the protection of mining property.—That much land, which had been heretofore assessed to the relief of the poor, is annually being thrown out of cultivation by the extension of mining operations, and rendered thenceforth perfectly exempt from parochial assessment.—That in these various modes our mines operate greatly in increasing the parochial burthen on the property of the country.—That, until very recently, the miners have borne some share of those burthen which they had thus created, having been assessable on a proportion of the produce which it had been customary for the landlord to reserve to himself as dues.—That it has lately been decided that, by commuting this proportion of the produce for a specific money payment, the liability to parochial assessment may be evaded.—That such a commutation has accordingly been very extensively made, and the whole of those parochial burthen, which have been aggravated by mining operations as aforesaid, been thrown on the agricultural and trading parts of the community.—That this board, therefore, begs to ask whether, in the judgment of the commissioners, the decision of the non-rateability of money payments is capable of being maintained, or whether our mines, or any part of their buildings, machinery, or otherwise occupied space employed in the raising of the ores, or preparing them for market, or for the ground taken out of cultivation by the extension of works, may not be required to bear a fair proportion of the public burthen."—West Briton.

THE "KITTING" CASE AT WHEAL LEWIS.—At the Cornwall Michaelmas Sessions, on the 21st October, John Pearce and William Symons were indicted for feloniously removing and concealing, on the 15th of Oct., a quantity of tin ore, at Wheal Lewis, in the parish of St. Erth, the property of Samuel Noell and others, adventurers in the mine.—Mr. DARKE opened the case for the prosecution, and then called Samuel Noell, managing agent of Wheal Lewis, who deposed that on the 28th of last Aug. he set a turf work bargain to W. Symons and others, in the 50 fm. level east, at three guineas per fm.; the ore they raised belonged to the adventurers, and was good quality work. At the same time the prisoner, J. Pearce, had a pitch adjoining the winze shaft, in the 50 fm. level, at a tribute of 6s. 8d. in the fl. He was working at the back of the level, and at the bottom was a stall on which the deads would fall, and form a heap. He had two mills, or passing places, which were for the purpose of delivering the work on which he received the 6s. 8d. in the fl., the refuse being left on the stall. In consequence of information from Shug, the mine watchman, Captain Noell went down to Pearce's pitch on Friday, the 15th Oct., and found him there working. After speaking to Pearce, the captain took the pick from him and began to dig. He soon broke off a stone, and went on the stall to search for it, when, on removing the rubbish, he found two boards, under which was some timber. He asked Pearce what that was, and the latter said some boat work, although he had previously told the captain that all his work was down in the level. The mill in the stall was then tapped, and when Captain Noell saw the stuff in the level, he said to Pearce, "You have not broken this ore in your pitch." The prisoner affirmed that he had, upon which Captain Noell sent to another level for some men who formerly worked in the same pitch. Before they came, Pearce said, "I shan't be punished for another man, I will tell you who gave it to me." William Symons brought back some stones from the 50 fm. end, and put it in the mill; some I put in myself, and some he put there during my absence." The captain asked what interest Symons had in it, to which Pearce replied that they wished to put as much there as would give them 2s. each. Captain Noell afterwards went to where Symons was working, and on questioning him, Symons said he had only put one barrelful of tin in Pearce's pile, and that was by mistake. Symons, who was a turfwork man, had to pass Pearce's pile with the ore raised, in order to get to the adventurers' pile. There was no necessity, whatever. Capt. Noell said, for the mills in Pearce's stall; it was quite out of the regular mode of mining to have mills in such a place; the ore, in his opinion as a miner, could not have been carried from Pearce's pile to the mill in the stall except for the purpose of concealment. On cross-examination, Capt. Noell said there were two kinds of work in Pearce's pitch; if a man chose to make mills in a stall there was nothing to prevent him.—Re-examined.—He never before saw a mill in a stall so shallow as Pearce's; and when made they were always kept open for use.—Thomas Shug, a watchman at Lewis Mine, stated that he went down to Pearce's pitch, under Capt. Noell's directions, on Thursday, the 14th inst., when Pearce was not there. Witness searched the stall and found some work in a mill covered with boards and rubbish, of which he informed Capt. Noell. Samples were then produced, taken from Pearce's pile, from the work in the concealed mills in Pearce's stall, and from the end of the 50 fm. level east, where Symons had worked. It appeared, however, that these samples had not been taken in the prisoners' presence; and they had also been left in a secret place in the level, from Friday until the following Monday. The consequence was, that Mr. DARKE, on the part of the prosecution, thought proper to give up the samples as proving his case, and to rely upon other evidence. The CHAIRMAN said, it was of the utmost importance, and he had publicly said so in former cases, that samples should invariably be taken in the presence of the prisoners who were affected by them. This might be very easily done, and then there could be no fault found with them.—Capt. Noell was then recalled, and stated that from his knowledge of the mine he believed the ore in the concealed mills had not been raised in Pearce's pitch; he had compared it with the ore in the 50 fm. end, and found it to correspond in every respect.—John Gleeson said, he knew Pearce's pitch, having worked there three months' ago. On the 15th Oct. he was sent for by Capt. Noell, to look at the ore in the mills in Pearce's stall, which he believed, did not come from Pearce's pitch, but from the 50 fm. level east. On cross-examination, the witness admitted that when he worked in the pitch, there were sometimes bunches of good ore to be met with.—Francis Eastace, a turfwork man, was also convinced that the ore found in the concealed stalls had not been raised in Pearce's pitch; but that some was taken from where witness worked, and some from the 50 end.—Mr. HOCKIN,

in addressing the jury for the prisoners, complained of the injustice of the mine agents in taking samples when they were not present, and contended that no evidence had been adduced on which the jury could convict Symons. The CHAIRMAN, in summing up, directed the jury to acquit Symons, but Pearce was found guilty. In passing sentence, the court said, it was well known that the offence of killing was becoming very general in this county. It was an offence very difficult of detection, and difficult to prove against an individual; but, when proved, the court were determined to mark it with a severe punishment. He hoped that what he now said would go forth amongst the miners generally, and that they would abandon the practice of plundering their employers. He then sentenced the prisoner Pearce to six months' hard labour in the house of correction.

The great mining case, "Hilton v. Lord Granville," is coming again before the public in full force—rules nisi having been obtained, by the counsel for both plaintiff and defendant, at the Court of Queen's Bench, on Thursday last.

IMPORTANT MINERAL TRIAL.—The Great Barnstaple Court, for deciding mineral disputes in the wapentake of Wirksworth, was held last week in the Moat-hall, Derbyshire.—W. E. Mousley, Esq., as steward of the court, presided as judge; and, after the usual routine business of adjusting the ore "dishes" had been gone through, a jury of miners was sworn, and the court proceeded with the important mineral trial, "Greatrex v. Spencer." Spencer and Company had sunk several shafts in a field called Westow, at Brassington, one of which they named Hall's founder, in the mineral title called Victoria. The ground in this part of the Queen's field presents the unusual circumstance of there being what is called a flat work, meaning a work of lead ore, spreading laterally and horizontally, at about 3 fms. from the surface, similar to a coal-bed, while, underneath this, 7 fms. still deeper, a rake work, or vertical vein of lead, commences, and extends downwards. Those who are not versed in mining affairs will better understand this, when we state that a section cut through the flat work, which is superposed on the rake work, at a transverse section to the latter, would in shape nearly approach the letter T. In the course of the mineral operations of the defendants, they discovered this lower vein, and plaintiffs shortly after sank three or four shafts in search of the same vein, within what is called the founder mere of the defendant's title. Defendants had freed their flat work, according to mineral custom, about 20 yards from their founder shaft; while the plaintiffs, who had also discovered the flat work, alleging they had an old title there, had freed that as a new vein, and called it Prince Albert. The defendants had also freed their rake work, lying under the flat work, by the name of Hall's vein. The question at issue now was—and it was a new question in lead mining in the Derbyshire Queen's-field—whether the flat work could belong to, and be worked by, one party, and the rake work be taken up and worked by another. The question was decided by the plaintiffs' own acts—namely, having freed both the flat work and the pipe work as new veins, whilst the defendants had taken up and freed both veins for new or old; and plaintiffs, consequently, lost on the merits. By this decision, it appears that, under circumstances similar to those narrated, two separate veins

GREAT WHEAL MARTHA MINING COMPANY.

Sir.—In reply to the lengthy epistle of your correspondent, possessing "common sense," called forth by the jumble of words from "Geologicus," I beg briefly to state, that my letter, which appeared in your Journal of the 23d ult., contained facts which it is not in the power of your correspondent to refute, and that my opinions of the "Practical Agent," and of his friends remain unaltered. "Amicus Neutro" ought not to have taken advantage of a typographical error, and should, at least, have been faithful in his quotations. The sentence beginning at the 33d line from the top should have read—"Your correspondent thinks, without assigning any reasons, that 80 fms. is the proper depth for ore here, and not 'one'." I also stated, "that the 'Practical Agent' was really not able to give the agents of Wheal Martha any information in any branch connected with mining;" now, this might be a very possible case, and yet his advice might be of service to such as "Amicus Neutro." The recommendation to give advice previously to results being obtained, was not intended as a hint to gain information; but it was intended as a hint that the truth of the "Practical Agent's" assertions were, at least, doubtful; for, if he really did give his opinions several years since, as stated in his letter, what motive, I would ask, could have induced his friend to conceal these opinions for so many years, and give them publicity after the mine was suspended working? I contend, that it is not in the power of the "Practical Agent" to show any just cause why Wheal Martha (under the circumstances described in my letter) should not have been explored in the manner she was, and that he is not able to adopt a better plan for her future development than has been laid down by the company's agents. It is my intention to give a description of the metallic veins, and mineral deposits in the locality of Wheal Martha, for which you will, perhaps, allow me space in some future Number of your Journal, when the word "proximity" shall be made plain to the man of "common sense," by—*Geologicus*: Nov. 3.

WHEAL CONCORD MINING COMPANY.

Sir.—I have read through the letter signed "H. English," inserted in your Journal of Saturday last, the 30th ult., and am sorry to find, from the statements therein made, that the accounts of this company have not been audited; and, most certainly, great blame must be attached to the secretary and committee of management, when they forwarded the moneys to the clerk, Mr. T. Weeks, to discharge the liabilities every month, in not having transmitted to them the several vouchers, how and in what way the moneys had been applied, and whether as directed by the committee. Certainly, for one, I would recommend the committee at once to require Mr. Weeks immediately to furnish them, or the purser, with a statement of the receipts and payments of moneys sent him by the committee; and in case he still neglects, or refuses, to do so, I should say, let the solicitor of the company be consulted, as to the course which it may appear most prudent to adopt. It is really one of the more unheard-of cases I have met with—if that the statements made by Mr. English be true, and which I do not for a moment impugn; especially as the clerk is a son of the lord of the mine, whose object ought, by a strict observance of the duties devolving on him, to have done every thing in his power to promote the interest and welfare of the company, so that the mine might have been worked in a spirited and legitimate manner. I, therefore, trust the clerk will at once obtain the different vouchers required (if he has not already done so), and transmit them to the committee, or purser, that the accounts may be audited, antecedent to the proposed meeting recommended in the letter of Mr. English, and which is the only information I have received on the subject. I cannot but help thinking, that the committee and shareholders ought to be obliged to Mr. English for the manner in which he has placed the matter, and the incontrovertible evidence given why the accounts have not been audited. London, Nov. 3.

J. R. (An Original Shareholder.)

WHEAL TRENANCE MINE.

Sir.—Feeling not a little surprised at the enormous price which these shares were quoted in your Journal of last week, could you, or any of your correspondents (perhaps the agent can), inform me, through your Journal, what they have discovered, since the last working, to warrant such a price—no less than 100,000*l.* for the mine—whereas all the materials together are not worth 100*l.*? I was a shareholder in the mine in the former workings, and had inspected it different times after I bought; but I could not trace anything of a lode of importance. It appeared to me to be veins of malleable copper (the largest I saw was not half an inch thick), running through the serpentine, which may be seen in a great many places on the coast of Cornwall; but nothing to warrant such an extortionate price. If they had made any returns, it would greatly enhance its value; but such a system of mining and puffing will never stand the test of time. I hope soon to see an authenticated report of the workings of this (it must be) valuable concern inserted in the Journal, knowing no better medium; and I have no doubt, Mr. Editor, you will be most willing to give it insertion, and then the buyer, as well as the shareholder, may know that his money is not spent for naught.

True, Nov. 3.

NO PUFFER, NO JOBBER.

Sir.—I wish some one of you Liskeard correspondents would favour the public with a description and specification of the mines in the Caradon district, with their relative situations. In making an excursion into Cornwall lately, I stopped on my way at Liskeard, and made inquiry about the mines in that neighbourhood; but I found so many Caradons, that it is quite bewildering to a stranger. A monthly report of the progress and prospects of the mines in that promising locality, would be of great service to speculators.

Plymouth, Nov. 2.

AS ADVENTURER.

ERRONEOUS QUOTATIONS IN SHARE LIST.

Sir.—Observing in your Journal of Saturday last, in the list of prices of shares, two or three misquotations of mines connected with these offices, I take leave to bring them under your notice, with the request that you will rectify the errors in your next. "Gadair" are marked 2*d.* paid, and 20*d.* the price: it should be, 2*d.* paid, and price at par. "Wheal Barbara" shares are quoted at 1*d.* 10*s.* paid, and price 2*d.*: this should be, 1*d.* 10*s.* price 4*d.* to 5*d.* "Cascade," again, should be 1*d.* paid, and price 2*d.* I am sorry to intrude upon your columns, but I feel satisfied of your desire to be set right, in all cases where error may unintentionally have crept in.—THOMAS HENRY TAUNTON, Sec.

British Mining Office, 41, Moorgate-st., and 12, Haymarket, Nov. 4.

FOLEY CONSOLS.—At a meeting of adventurers, held on the 19th, the following accounts were presented, showing—By balance at the end of April, 8035*l.* 1*s.* 2*d.*; ores, as credited in the cost book, 15,027*l.* 16*s.* 3*d.*; sundries, 24*s.* 1*d.* 4*d.*—23,313*l.* 3*s.* 9*d.*—To costs, &c., for May, June, July, and Aug., 15,060*l.* 12*s.* 3*d.*; charges on ore at West Foley Consols, 97*l.* 14*s.* 2*d.*—15,158*l.* 6*s.* 5*d.*—leaving balance in purser's hands, 8154*l.* 17*s.* 4*d.*

WHEAL BLENCOWE, IN ST. STEPHENS.—On Thursday, the 28th of October an animal, whose body was broad and short, without a tail, furnished with four legs, and bearing a general resemblance to a frog, was dug up in the 22*f.* level in this mine. It was about half the size of a common frog, and was found in a "rugh," or hollow of a rock, which was blasted by a couple of miners. After the blasting of the rock, in which no means of access to its cavity could be discovered, this imprisoned animal, which was perfect in his kind and formation, was soon released, and made his escape apparently not in the least spent from want of nourishment.—Correspondent of the *West Briton*.

COALS FOR INDIA.—The home and finance committee of the East India House have given notice that they will be ready to receive tenders on or before Wednesday, the 17th inst., for 5000 tons of coal, of either of the under-mentioned sorts, to be delivered at Bombay:—West Hartley Carr's coal, Bedale's Hartley, Davison's West ditto, Stewart's Wall's steam coal, Hartlepool West Hartley coal, Glasgow hard split coal (the above are to be screened), Biass Slack vein coal (handpicked). The tenders must be sent in before 12 o'clock of the 17th.

DISCOVERY OF COAL IN THE ISLAND OF BORNEO.—This recently-conquered island by the British, from a nest of pirates, is likely to become an important acquisition, as, from geological researches which have been made, there are very extensive fields of coal of a superior quality, equal, it is said, to that of Durham and Newcastle; iron, copper, lead, and other metals have been discovered in various parts of the island. The discovery of coal will, no doubt, lead to large works for the supplying of the East Indian steamers.

AWFUL STATE OF THE IRON DISTRICTS—ROBBERY.—We have just been informed, that Dr. Bowring and his brother (Mr. Charles Bowring), while returning from Bridgend, on Thursday last, where they had been to obtain cash to pay the workmen at the Lynyi Iron-Works, were stopped by two men in a lonely part of the road, and robbed of 1000*l.* in notes and gold. It is said one of the men has since been taken into custody.

A millowner near the Ouse obtained 1000*l.* from the company for loss of wind, by the erection of the embankment for the bridge by the Lynn and Ely, the opening of which we noticed last week.

BIRMINGHAM AND OXFORD JUNCTION RAILWAY.—Yesterday a memorial from the inhabitants of Leamington Priors, to the Birmingham and Oxford and Great Western Railway Companies, agreed to at a public meeting on the 4th inst., was presented to the directors, calling on them to fulfil their promise, and form a line of deviation and a station at Leamington, for the accommodation of the inhabitants.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Oct. 30 was 17,051: amount of money, £71 11*s.* 9*d.*

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars . . . per oz. 23 17 9 New dollars per oz. 4 9 11 Silver in bars (standard) 0 4 11 2

Proceedings of Public Companies.

MEETINGS DURING THE ENGLAND WEEK.

MONDAY	Patent Galvanised Iron Company—London Tavern, at One.
WEDNESDAY	Wheat Gill Mining Company—at the mine, at Two.
	Herodsfoot Mining Company—at the mine, at Three.
	Herodsfoot Mining Company—Herodsfoot Count-house, at One.
THURSDAY	India and London Life Assurance Company—offices, at One.
	Dartmoor Consols Mining Company—Coughstall, Essex, at One.
	Imperial Continental Gas Association—offices, at Two.
FRIDAY	Wheat Salsbury Mining Company—Red Lion Inn, Liskeard, at Two.
SATURDAY	East Coombe Mining Company—Eborby Arms, Barnstaple, at Two.
	Charles-cross Bridge Company—offices, at One.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

ASTURIAN MINING COMPANY.

An adjourned general meeting of shareholders was held, at the offices, Austin-friars on Saturday last, the 30th October.

S. P. PRATT, Esq., in the chair.

After the usual preliminaries, the SECRETARY (K. MACKENZIE, Esq.) read the following report:—

The last meeting of the shareholders was adjourned to this month, in the expectation that the directors would have it in their power to fix an early period for the payment of a dividend. In this hope they have been disappointed, from circumstances which could not have been foreseen: they, however, hope and expect, that a very short time will enable them to do so. The causes of their delay have arisen from the failure of a bed of clay retorts, a few days after it was set in action; and, subsequently, when this evil was repaired by a new set of iron retorts, the death of one of the Spanish workmen, and the illness of others, induced the alcalde of the village to put a stop to the whole of the mercury operations: it has since been ascertained, that the man died from natural causes, and we have just heard that the inquisition has been withdrawn. The effect, however, has been, that, instead of being able to deliver to the Spanish Government 3000*l.* or 4000*l.* worth of mercury, as might reasonably have been expected, not more than 2000*l.* worth has been sent in: in the mean time, the produce of the mines has been accumulating, and we continue to receive the most favourable accounts from them—the ore increasing in richness as the mine deepens. A large chamber furnace is being constructed, which will enable us to distil several tons of ore at one time, with little or no risk to the health of the workmen. It cannot, therefore, be doubted, that by the commencement of the new year, a very considerable sum will have been realised: and, as our last account from Santa Firme show a clear profit of 700*l.*, this will be added to the produce of the quicksilver to form the basis of a dividend.

The last report of the state of the mill and forge, and blast-furnaces, is very favourable. A letter from our manager, Mr. Lambert, gives us a very gratifying report of the action of the blast-furnace; the first iron was made on the 20th of this month; and there is every reason to hope that, by the end of the year, a considerable value in iron will have been realised—the machinery had been tried, with a satisfactory result; and, as the last cargo of iron-work is now at Hull, for shipment to Spain, the most important part of the works will be finished before the close of the year. It may be thought desirable by some of the shareholders to limit the expenses, as much as possible, during such a period of difficulty, but, as the present is the best season of the year for working in Spain, and, as the works must, in a few months, be yielding a very profitable return, it would be unwise to cause any delay, when the stream of gold, which has been so long flowing from our pockets, is about to change its direction. Although it will be necessary, in order that our possessions may yield their full return, to build other blast-furnaces, and erect additional works; yet, it may be expected, that outlay will be chiefly derived from the works themselves.

A statement of the liabilities of the company is laid upon the table—amongst these, there is payable to the bankers 7500*l.*, which becomes due early in the ensuing month, the directors cannot, therefore, ask them for a renewal of these bills, except under the guarantee of another call of 1*d.* per share, which will immediately be made; but, with a view of rendering this call as little onerous as possible to the shareholders, the directors propose to divide the payment into two instalments of 10*s.* each, the first payable on the 4th of December next, and the second on the 4th of the following month, January.

A list is also presented of the number of shares upon which the last call has not been paid, amounting to 2260. In justice to those shareholders who have paid their calls, the directors consider it indispensable to forfeit all those shares upon which the last call shall not have been paid by the 15th of next month; and, immediately after that day, a list of such forfeited shares will be published, and the shares will be sold for the benefit of the company.

After considerable conversation among the parties present, the report was adopted, although several shareholders strenuously maintained that there was no necessity for a call—as those holders who had not paid their calls were to understand that legal proceedings would be commenced against them, the money would be forthcoming. The chairman and directors, however, contended, that even if they forfeited the shares, they would not sell, in the present financial difficulties; and it was at length agreed, that all shares should be forfeited, on which the calls were not paid by the 30th inst.—Thanks were voted to the chairman and directors, and the meeting separated.

[An accident occurring to that part of the paper in which our report of this meeting was inserted, compels us hurriedly to have prepared the above condensed notice.]

X VAUXHALL-BRIDGE COMPANY.—The half-yearly general meeting of proprietors in this undertaking was held at the George and Vulture Tavern, Cornhill, on Thursday, the 4th of November.—Mr. BARROX in the chair.—The statement of accounts, from the 25th of April last to the 24th of October, showed the receipts for tolls to amount to 700*l.*; pier dues to 31*l.*; rent to 48*l.* 10*s.* 10*d.*; and the gross receipts, including a balance from last settlement of 2185*l.* 0*s.* 10*d.*, to 9796*l.* 18*s.* 1*d.* The expenses of repairing the bridge, &c., were set down at 995*l.* 9*s.* 7*d.*; the cash in the hands of the company's bankers at 2846*l.* 16*s.*—leaving, as dividend for the proprietors, after deducting all incidental expenses and disbursements, a gross sum of 5244*l.* 18*s.*—After some discussion, the report and financial statement were received and adopted, when the meeting separated.

X SECOND TUNNEL BRIDGE.—One of these wonders of the age, the tubular bridge over the Conway, is so far advanced towards completion, that its erection is expected in the course of the ensuing month. The site of the bridge is on the south side of Telford's suspension bridge, close to the wall of the Conway Castle Bridge (also by Telford). It will be precisely of the same description as the one to be thrown across the Menai Straits, the Conway-bridge consisting of two tubes or tunnels (one for the up and the other for the down line of rail), each 400 ft. in length. It is rectangular in form, consisting entirely of sheet-iron, 1*i.* in. thickness. The inside, through which the trains are to pass, is 24 ft. high and 15 ft. wide. The outside height is much greater, being about 30 ft. The top is of two thicknesses of corrugated metal, forming a series of circular tubes of about 3 ft. in diameter. This form is considered to offer the greatest resistance to compression. The sides are of sheet-iron of one thickness; the bottom has a double thickness, 3 ft. apart, connected by intermediate longitudinal ribs, so as to give the necessary stiffness for the carriages to pass over. The whole mass, weighing upwards of 1000 tons, will be placed on the abutments at once. The place where it is being constructed is on a huge timber platform, in a curve of the Conway, a few hundred yards from the intended site of the bridge. Immediately the tube is completed, with the aid of a flood tide and pontoons, it will be raised so as to admit of the platform on which it is erected being carried away.—*Shrewsbury Chronicle*.

GREAT WESTERN SHARES.—In August, 1845, the Great Western shares, with 80*s.* paid, were done at 235*l.* or 200 per cent. prem. In August, 1846, with 85*s.* at 155*l.* In October, 1847, at par, and now a few pounds premium!

X RAILWAY TRIBUNAL.—We have reason to believe that the formation of a tribunal for railway matters has been under the consideration of Government.

A president, with four or five privy councillors, are, it is said, likely to be judges of this court. A tribunal to which a ready appeal could be made, without the delay and expense of tedious law forms, would be exceedingly desirable in disputes between directors and shareholders, with reference to those companies and projects which have failed. It may be also worthy of consideration, whether its jurisdiction might not be extended to all matters touching railways with greater benefit than the present "groups," and courts of law. We have precedents in the existing Privy Council, and the Court of Excise, and Court of Bankruptcy. If the judges inspired confidence, public opinion would disregard the forms of law and equity courts.—*Railway Record*.

X PER CENTAGE PAYABLE ON RAILWAY SHARES.—Mr. Watson, of Glasgow, in his last circular, shows the return per cent., at present prices, on the stock of various railways, from which we gather that the Newcastle and Carlisle will return 5*s.* 10*s.* per cent.; the Dundee and Arbroath, 5*s.* 14*s.* 3*d.*; London and North-Western, 6*s.* 3*d.*; Eastern Counties, 6*s.* 9*s.*; Midland, 6*s.* 12*s.* 1*d.*; Edinburgh and Glasgow, 6*s.* 18*s.* 3*d.*; London and Brighton, 7*s.* 2*s.* 3*d.*; Glasgow and Ayr, 7*s.* 2*s.* 10*d.*; Great Western, 7*s.* 2*s.* 2*d.*; London and South-Western, 7*s.* 5*s.* 5*d.*; York and North Midland, 7*s.* 8*s.* 2*d.*; and York, New-Castle, and Berwick, 7*s.* 10*s.* per cent.

X RAILWAY CONTRACTS.—In the lease of the Taw Vale line to the South Western Company, the letting of all the contracts is left to Mr. Locke: he fixed his own prices with the contractors. The South Devon line was not let by tender, but in pieces, to Mr. Hennett (an old associate of Mr. Brunel), and two others—Mr. Brunel fixing the prices. It is said, that the demand of the contractors for the Exeter and Crediton line exceeds by 8000*l.* This is one of Mr. Brunel's lines; the prices are said to be 25 per cent. below Mr. Locke's prices with the Taw Vale contractor. Mr. Locke's works are generally executed under the estimates—Mr. Brunel's, never.—*Railway Record*.

X NAMUR AND LIEGE RAILWAY.—Towards the end of October there were employed on the works of this line, 2547 workmen, 400 wagons, and 20 horses. The statement of several Belgian papers, that the works have been suspended, was unfounded.

X DISCHARGE OF MEN BY RAILWAY COMPANIES.—The contractors for the London and North-Western Railway have already discharged 2600 men, and are about to discharge a still larger number. On Saturday last one contractor on the Great Western line gave notice to 1400 men. In Lancashire, the works in hand are almost wholly stopped, and about 10,000 men are already dismissed. On the whole, up to Saturday last, at least 30,000 navigators had been discharged; and it is estimated, that before the end of the present month, that number will be doubled. Besides these there will be 10,000 mechanics thrown out of employment, most of whom have families dependent on them. Taking the whole into the account, we may reckon on having to support, this winter, about 150,000 persons of the railway class, either by poor-rates or by rapine.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Eleven o'clock.

Bank Stock, 9 per Cent., 184 6	Belgian Bonds, 4*s.*

NOTICES TO CORRESPONDENTS.

It will at all times save much trouble, and frequently considerable delay, if communications are simply directed—
TO THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

Also, to avoid trouble, POST-OFFICE ORDERS should always be made payable to WILLIAM SALMON MANSSELL, as acting for the proprietors.

MINING IN IRELAND.—The letters of "Observer" and a "Well-wisher," will appear in our next; as also a continuation of our editorial observations.
"I. W."—The subject shall be noticed in our next.

Review—"A Subscriber."—"M." (Leeds).—"T. R." (Birmingham).
We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses; not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, NOVEMBER 6, 1847.

The all-absorbing questions of the state of our commercial and financial difficulties—their cause, remedy, and connection with the existing system of the currency laws—have, throughout our whole commercial history, and under the most intelligent and able ministers which England could ever boast, presented difficulties of the most formidable nature, and which have ever required, in cases of emergency, similar to that we are now suffering under, efforts of no ordinary nature. That the great demand for money, occasioned by the progress of the railway system, during the past 10 years, being more than could be met by the usual circulating medium, has been, in a great measure, the cause of the present crisis, there is little doubt; and the late and present conduct of the Bank, in their refusal to take railway paper, has evidently made the matter worse.

On this subject, we refer our readers to an article, in another column, from the *Scottish Railway Gazette* (if we mistake not), representing the views of the treasurer of the Caledonian Railway. The impolicy of this step, whether on the part of the Bank of England, or those private and joint-stock banks in both England and Scotland, who are following the suicidal measure, is here most ably shown; and it is clearly proved that, by such refusal, they are throwing away thousands upon thousands sterling profit—and thus not only putting a restriction on the national industry, but actually locking up their own coffers against that golden stream, which, under a more liberal and a more enlightened system, would inevitably flow into them. We are aware that the currency question is a difficult one; we are also aware that an unrestricted issue of paper, would be productive of more evils than existed in the disease it was intended to cure; but there are evils of as great magnitude in a too great dependence on a bullion currency. The late Sir R. Peel saw this; and, in 1826, suggested to the Government, without success, that wealthy corporations and individuals should be allowed to issue paper to a certain extent, by giving security on real estates—such as land, houses, canals, docks, &c.—to one-half the amount so issued. There is much deserving of serious consideration in such suggestion; and if instead of giving security for only one-half, the owners of real property, to a certain amount, were allowed to issue their paper to an extent of one-half the value of such property, it would represent real wealth, and be as secure as a Bank of England note, or a Treasury Exchequer Bill. A very few years since, a case in point occurred on the continent, as will be seen in a communication from a correspondent in another column. The Saxon Railway Company, being at a complete standstill for want of funds, applied to the Government for permission to issue notes, secured on their real capital, which was granted; the works were immediately proceeded with and completed, the company relieved from their embarrassments, and their notes are still confidently accepted, forming part of the circulating medium of the country.

We cannot better close this article than by giving an outline of a plan, for the issue of a secure paper currency, suggested by an old and esteemed correspondent of Bristol. In the first place, an Act of Parliament should be obtained, appointing commissioners, to be called "The Paper Currency Security Commission;" then, that any individual, or body of individuals, possessing real property, in the shape of freehold lands, buildings, canals, docks, or railways, should be permitted to issue notes, payable on demand, on giving security to the commissioners, to double the amount of such issue on such real property, and paying 2 per cent. to Government for the permission. That such notes should pass in precisely the same manner as Bank of England notes; and that, in case of failure of the parties issuing, such notes to be payable by the commissioners. There are many other details in the plan suggested, but the above are its fundamental principles—in which, it will be seen, there is much worthy of consideration; here we should have a convenient circulation, based on undeniable security, which, besides relieving the great interests of the kingdom, in times of emergency, would bring in a large revenue to the Treasury, diminishing so much of direct taxation. It would be a circulating medium, which, not being subject to every fluctuation of exchange, would, in a great measure, according to the very nature of things, accommodate itself to the trading wants of the community, and, probably, to a considerable extent, regulate the exchanges with other countries. Be that as it may, it would, at all events, be a currency, in which unlimited confidence would be placed, as well at home as abroad, as representing a portion of the real wealth of the nation, amply secured to the holder; and nothing short of the breaking up of all our social bonds, and striking at the very root of the rights of property, could, in any way, diminish their value.

The assembling of Parliament for the dispatch of business so early as the 18th of November, is a circumstance pointing with sufficient clearness to the gravity of our public situation. It is the intention of Ministers to ask a vote of both Houses, in approbation of the advice they recently gave the Bank, in respect of the still subsisting money pressure. This is, we believe, the proper and the constitutional course, when an Act of Parliament has been over-ridden by the sanction and concurrence of Government. It is not certain that there are any other objects in view, than the vote of indemnity to Ministers; but our opinion is, that there will be a short and vigorous session before Christmas, involving questions of great and immediate importance. We hope it may be in the power of the Legislature to ameliorate and revive the trading and commercial interests of this languishing community. It will be a happy circumstance, if their political ability is sufficient to facilitate our transition from suffering to ease, and from ease to general prosperity. We rely, however, more upon the creative power of our industry than upon any public enactment for such results. Mining property, as a whole, has not materially changed its value or its situation since our last quotations. It partakes of the laugur which affects almost every other kind of stock. Throughout the somewhat protracted season of pressure, property of this kind has kept its place, and resisted the generally downward tendency of other kinds of stock. It could not, therefore, rebound, as more elastic descriptions of property do, upon the subsidence or removal of a great pressure. But, even in this department of industrial occupation, there is room for expansion and improvement. And of this we are quite sure, that, when the tide is again fairly at flood, when the march of our domes-

tic interests is clearly set forward, then mining prosperity will flow with a freer tide, and advance with as vigorous steps as any British interest whatever.

The name of DAVY must ever be held in esteem by the present generation, and be carried down to posterity, in association with the greatest benefactors to the human race. Whatever claims may be set up by others to the first discovery of the principles of the safety lamp, there is now no doubt—and history confirms the assertion—that his genius first discovered the properties of the wire gauze, in intercepting the passage of flame; and that it was his philanthropy which first applied it to those purposes, which obtained, for the first miner's lamp, the name of the DAVY. Although this alone would have immortalised any common man—for the saving of human life it has effected—yet, as a mere discovery, it may be considered the least of his merits. The great mind of Sir HUMPHREY DAVY encompassed the universe—dived into the arcana of Nature—and made discoveries which upset all the crude preconceived notions in natural philosophy, and opened up a field for research after truth, which has been well followed up by successive investigators, whose every step has fully borne out the correctness of all the views which he had supported, but which he lived not to prove to the world. His great discoveries in chemistry, in which he showed to his wondering compatriots that what had heretofore been considered simple elementary substances, were oxides of metals, previously unknown, and those metals possessing most extraordinary properties—his insensibility to pain or danger, in investigating the properties of the several gases as effecting human health and life; and his anxiety at all times for the amelioration of the sufferings of the working artisan, particularly the miner and collier, hold him up as a true philanthropist, and a pattern to mankind at large. With such claims as these, on the recollection of his countrymen, it is with much pleasure we observe that a proposition is set on foot, in the neighbourhood of Oldbury and the surrounding collieries, for the erection of a statue to the memory of this great man, and which has been heartily responded to. Mr. J. GREEN, the owner of Titford Bridge Colliery, with whom the project, in a great measure, originated, in an appeal to the inhabitants of Oldbury, thus addresses them on the occasion:—

"I have long cherished a desire to see a monument, or column, erected in Oldbury, to the memory of Sir HUMPHREY DAVY, the inventor of the safety lamp; and though years have been suffered to elapse without anything being attempted, yet it would be better late than never; I, therefore, take the liberty of addressing a few words to you on the subject. It may be asked, why select Sir HUMPHREY DAVY more than any other talented man? Why I have chosen Sir HUMPHREY DAVY is, because he is more intimately connected with the mining districts—because his discoveries are, and have been, of vast importance to chemistry and the arts and sciences—and because his lamp has been the means of saving human life. If we are to immortalise the leaders in the battle-field—if monuments are to be erected to the memory of those who have deluged the earth with blood—surely you will agree with me, that the man, who has saved thousands of human lives, should ever be remembered. I have been promised considerable sums towards the project; some very respectable gentlemen have promised to contribute; and one pit company have also agreed to enter into a penny-a-week subscription towards the object. Let this plan be followed by the other pit companies in the neighbourhood, and the work would speedily be accomplished; for what cannot unity effect? The coalminers will also give liberally I am persuaded, for they also have been greatly benefitted by the safety lamp; and some of them have promised already to contribute. The charter masters, the clerks, the shopkeepers—in fact, the whole inhabitants—will join in the work; for their interests are so interwoven with that of the miners, that they will feel a pleasure in assisting them in paying a tribute of gratitude to the memory of the man that has done more for them than any other human being; for there is not a miner now in existence who might not have been swept into eternity, had it not been for that simple yet invaluable, lamp."

In these sentiments we cordially concur; and it is highly satisfactory to learn, that so warmly is the project espoused, that Mr. DUGDALE HOUGHTON has promised piece of ground for a site, opposite the church in Oldbury, for the intended monument; and it appears this will be followed by the inhabitants of the district evincing so much spirit in the cause, that it will speedily be followed up by every mining district in the kingdom.

THE GEOLOGICAL FORMATION OF LAKE SUPERIOR.

[From a letter, just received from a geological friend, travelling in North America, we make the following extract, and which, doubtless, will prove interesting to most of our mining readers:]

The geological formation of Lake Superior is of modern date, embracing old red sandstone, variegated sandstone and clay (schistose and otherwise), bounded on the eastern range of the lake by primitive rock, and on the western by carboniferous limestone. These sedimentary deposits have been disturbed, contorted and twisted about in every possible shape, by repeated volcanic action, whose molten matter has been projected through the sandstone, to a great vertical height, and flowed over to a very considerable distance. Now, as the sands, conglomerates, clays, and such like, may be looked upon as non-metaliferous, it will be our object merely to refer to the matters of volcanic origin; and these are now classified under the various terms of trap, trap-amygdaloid, serpentine, porphyry, &c. &c.; but it is the trap proper and the trap amygdaloidal, which are the chief metal-bearing rocks of the whole group, and which, therefore, will demand our more immediate attention. It is from the trap that the enormous masses of native copper are being extracted at the Eagle Harbour and Copper Falls Mines, slabs of which are often met with from 15 to 20 tons weight. The cutting of these constitute the main difficulty, and chief item of expenditure. On the wharf, immediately opposite the hotel, there are about 80 tons of blocks, some of them marked 4000 lbs., and as pure as the best pig copper; so that all is not fiction, as many would have you believe, regarding the mines here—on the contrary, the reality surpasses every thing of the kind I have ever seen or heard tell of. Notwithstanding, however, this concession, I am far from believing that the party into whose hands the development of this mineral wealth has fallen, will reap any great benefit from it—at all events, for the present; nor are Lake Superior mines likely to interfere with those of Cornwall, for there is no chance of these being profitable concerns at the present standard; and this must be evident, when anything calling itself a Cornish miner, can command, at this moment, 6*l.* sterling wages per month, and rations equal to 30*s.* more. Then, again, is the transit from the mines to the coast, and this, taking in all contingencies, cannot be reckoned at a farthing less than 4*l.* per ton. However, these views of the actual state of things, do not appear to have had any very considerable share in the calculation of the "go-ahead" people at the Lake; and, to give you an idea of this apparent absurdity, it is only necessary to say, that for the last two years, they have been in high repute, and possess the confidence of the calculators on "Change," where business in them is regularly transacted. I intended to have gone up, and looked more into the mines themselves, but there is no regular conveyance; and as I wanted to get back to Philadelphia, and thence on to see the gold mines in the south, I had to rest content with collecting for you the above information. You shall hear from me again, when I have seen the gold mines.

STATISTICS OF FRENCH ENGINEERING.—France has, with the railway movement of the past few years, made great advances in her engineering knowledge and practice. In the early part of the development of the railway system, the French engineers and ironmasters, finding themselves totally unable to compete with English or Belgian locomotives, rails, and the other iron and engineering works connected with railways, made the greatest exertions to raise themselves in the scale; and, by the payment of high wages, and other enticing offers, induced a great number of our first-rate mechanics from Liverpool, Birmingham, Glasgow, &c., to join their establishments, and the consequence has been, that many of the French artisans have, through the example and instruction thus afforded, become as expert as their instructors. Still the railway system has progressed too fast to allow them to supply anything like an amount equal to the demand, and the consequence is, in spite of the high protecting duties, continued importation, much to their annoyance. In the year 1820, there were only 15 steam-engines in all France; while, at the present time, there are 4500, representing the power of 53,480 horses, and having 7980 boilers.

SWANSEA DOCK COMPANY.

In the *Mining Journal* of the 23d ult., after giving a full report of the meeting in London, on the 20th, and noticing that one had also taken place on the day following at Swansea, we stated our intention, as nearly as we should be enabled, to lay before our readers the true position of the undertaking—the promoters and shareholders in which are now, unhappily, divided into two parties. Having had our attention particularly drawn to the first establishment of this company, which is but of recent date, and having since attended all its meetings, in our capacity as journalists, and anxiously watched its progress, we are, in some degree, qualified to lay the true state of the case before our readers: we shall endeavour to state only facts, which we shall leave to the judgment of the public.

In Dec., 1846, Mr. Elderton, the London solicitor, had several communications with Mr. Jenkins, the solicitor at Swansea—the object of the latter gentleman, on the part of the Swansea directors, being to increase the number of directors, and establish a London board, and also to obtain the co-operation of the Cameron Steam Coal Company. The final reply of Mr. Elderton, after due consideration, and consultation with the company, was, to the effect, that the Coal Company, as a corporation, could not legally take part in the Dock, or any other company, but that the principal individuals connected with that undertaking would join the Swansea Dock Company; in a few hours' notice, after this communication, 1000 shares were taken by London capitalists—and, on the faith of these applications, seven directors were introduced by Mr. Elderton, who, in giving Mr. Jenkins notice of the proceeding, distinctly stated, it was on the condition that these London directors should meet as often as they thought proper, and be at liberty, with him, as one of the solicitors, to attend all meetings of the board of direction—that they should appoint a secretary, to correspond with the Swansea secretary—the Swansea directors were to be at liberty to attend the London board, when in town, or at any time they pleased—it being generally understood that all parties should co-operate to obtain the necessary Act of Parliament. The reply from Capt. Morgan (the chairman of the Swansea directors) was as follows:—"I am much gratified by your letter; on my own part, I fully assent to all the proposals, and will submit them, on my return (to Swansea), to the members, who I am sure, will readily approve of them; and, with me, will acknowledge the obligation we feel to you for the success of the undertaking."

In consequence of this apparently satisfactory state of things to all parties, resolutions were passed, and acted on, by the London direction—among which was the formal appointment of the solicitor and secretary; taking proper offices for the business of the company, &c.; and it was decided, that the proceedings of both boards should be regularly communicated to each—while one resolution expressed the necessity of every gentleman who attended the London board devoting his energies to promoting and working the bill through Parliament. The first sign of want of unanimity between the London and Swansea parties, was the retirement of J. H. Vivian, Esq., M.P., from the direction; and we are only aware of the further progress of the belligerents from the meetings of the 20th and 21st ult.—reported in our *Journal* of the 28th—which our readers, feeling an interest in the undertaking, have, no doubt, carefully perused. One important point therein, is the entire absence of any shareholders' registry, which Mr. Francis (the Swansea secretary) had neglected to bring.

We shall now take a review of the *Act of Parliament*, now lying before us, which must be considered the basis upon which all the company's proceedings should rest; and it is evident throughout, that the legislature contemplated the existence of a permanent board of directors in London, in communication with the executive in Swansea. In clause 8th it is enacted, "That the first general meeting of the company shall be held in London, within two months after the passing of this Act; and the subsequent general meetings shall be held in the months of January and July; the January meetings shall be held in Swansea, and the July meetings shall be held in London, in each year; and that all extraordinary meetings shall be held at such place, or places, as the directors shall appoint." Clause 11th—"That the ordinary meetings of the directors of the company shall be held in Swansea, but that a meeting of directors shall also be held monthly in London; and a meeting of directors shall also be held in London, within one month, and within not less than 14 days, after the passing of this Act."

Here, it is evident, a London management is intended; and, when it is remembered, that the Swansea proprietors represent 1139, to London 1527, we cannot but consider that, in connection with the above indisputable facts, the London establishment should be supported by the shareholders, more particularly as it must tend to an impartial and economical management of the undertaking, and satisfaction to the majority.

We have thus given, to the best of our ability, a history of the proceedings of the company. Whether the parties representing the Swansea shareholders have right on their side, is a question on which we must decline an opinion; or whether the bye-laws, made at a special meeting, at Swansea, on the 19th August last, two days previous to a meeting in London, duly convened, according to the *Act of Parliament*, can be legally acted upon; but, we think, in an undertaking, like the one in question, which promises to be of such vast public utility, and which there is every prospect would pay good returns for the capital invested, it would be wise in all parties to drop all personal and party opposition; proceed as the company was at first constituted, until the work was brought to completion; and then, if found necessary, alter the constitution of the corporation, in such manner as might be considered advantageous to the future interests of the company.

RAILWAY COMMUNICATION WITH MANCHESTER AND LIVERPOOL.—The official time-bill for the Northern mail trains, and the Trent Valley Railway, was received by the London and North-Western Railway Company, on Monday. The mails are to be transferred to the Trent Valley line on the 1st of next month. The saving of time to the passenger proceeding northwards, by express train, will be precisely that mentioned by us in the notice we gave some months since, of the opening of the Trent Valley line. We, on that occasion, stated, we had reason to believe that the journey between London and Liverpool would be made in 5 hours, and between London and Manchester in about 4 hours and 40 minutes. The statement below, which gives the departures and arrivals of the mail and express trains, shows that the trains will be accelerated at the rate mentioned by us. The early morning, or, as it is termed, the "newspaper" train, which now leaves London at 6.15, and arrives in Liverpool at 8.15, and Manchester at 2.40, will depart from Euston-square at the same time, and reach Liverpool at 2.12, and Manchester at 1.50. The 10 o'clock morning mail, now due at Liverpool at 5.10, will arrive at that place at 4.45. The same "through" train reaches Manchester at 5 o'clock; it will reach that town at 4.19. The 5 o'clock afternoon express, now arriving at Liverpool at 11.10, and Manchester at 10.40, will arrive respectively at 10 o'clock, and 9.40. The 8.45 night mail from London, now arrives at Liverpool at 5.25; it will arrive at 4.41. It reaches Manchester at 4.45; it will reach that town at 4.11. The 6 o'clock A.M. post-office express from Liverpool, will leave at 6.45, and arrive in London at its present time—viz. 11 o'clock. The same "through" train leaves Manchester at 6.15; it will leave at 6.45. The 9.15 A.M. post-office express from Liverpool will leave at 6.45, and arrive at Euston-square at 5.30. The same "through" train leaves Manchester at 9.40; it will leave 20 minutes later. The present 4.30 afternoon express from Liverpool will leave at 5, and arrive at 10.30—viz.: half an hour earlier than it does at present. The same "through" train will leave Manchester at 5.25, instead of 4.45. The 8.45 night mail from Liverpool will leave at 8.30, and reach London 33 minutes before its present time, or at 4.45, instead of 5.18. The same "through" train will leave Manchester 10 minutes later than at present.—*Herald.*

CHESTER AND HOLYHEAD RAILWAY.—One of the great iron tubes, to form the bridge over the river Conway, is completed, and the operations for raising it to the intended site, adjacent to the walls of Conway Castle, will be commenced in the course of the present month. It exceeds 1000 tons in weight, being 400 ft. long, and 80 ft. in height. It now stands on a platform, overhanging the Conway. It is intended to float it in a mass down the river, on pontoons, and raise it bodily on to the aluminous by means of hydraulic presses. The event is looked forward to with much interest by engineers.

SOUTH DEVON RAILWAY.—Rapid progress is being made on the unopened portion of this line. At Stoke, the men are pushing the work with all possible expedition; and the road down to King-street, Plymouth, may almost be said to be completed. Some of the labourers were last week discharged from this portion of the undertaking; and a party of 82 men was sent to Laira to strengthen the corps there engaged in preparing the ground for the temporary station, which will be ready, if not at Christmas, at least shortly afterwards. The atmospheric continues to run successfully.

AWKWARD POSITION.—A few nights ago, an Irishman, who had recently imported himself, got into a somewhat perilous box. He had been wandering towards the Upper Ward of Lancashire, and, unknown to the watchmen, made his way into the West of Scotland Malleable Iron Works, at Motherwell. Here he took up his quarters for the night in one of the puddling furnaces, which, of course, was not kindled at the time, but had a very cozy warmth about it notwithstanding. About two hours afterwards, the usual workmen came and lighted the furnace—quite unconscious, of course, that it was converted into a free lodging-house, and that the inmate was, by this time, in a comfortable sleep. The man returned half-an-hour afterwards, to see how the fire was progressing, and was assailed with the most lamentable groans from the interior of the furnace. In the terror that there were evil spirits in the smoke and flame, he fled to his companions and recounted the tale. Mustering courage in a body, which, perhaps, might have failed them singly, they proceeded to the furnace, and lifting the door, discovered and pulled out the poor Irishman, almost suffocated. Indeed, he had no chance of relieving himself, and a few minutes more must have proved fatal to him.—*Witness.*

PROGRESS OF FRENCH MINING INDUSTRY.

(FROM OUR PARIS CORRESPONDENT.)

You are aware that a new attempt, to obtain contracts for the supply of 60,000 rails, for the Versailles and Chartres Railway, was announced by the Minister of Public Works, on the failure of the first attempt. The business came off last Tuesday; but, by an oversight, I neglected to speak it in my last week's letter. The *Journal des Chemins* publishes an account of the matter, which has been supplied by the Department of Public Works. From this, it appears that the rails were divided into eight lots, of 7,500 ft. each, and that the maximum of the price fixed by the Minister was 345 fr., or 13*l.* 16*s.* per ton. Now, what think you were the offers made by the ironmasters? For the first lot, 364 fr. 54*c.*, 367 fr. 75*c.*, and 365 fr.—that is, 14*l.* 13*s.*, or a few farthings less; for the second lot, 365 fr. 50*c.*, 364 fr. 50*c.*—in round figures, 14*l.* 12*s.*; for the third lot, 354 fr. 50*c.*, 366 fr., and 365 fr.; fourth lot, 366 fr. and 365 fr.; fifth lot, 365 fr., 368 fr., 365 fr. 50*c.*, 344 fr.; sixth lot, 364 fr. 50*c.* and 365 fr.; seventh lot, 368 fr., 365 fr.; eighth lot, 368 fr. and 365 fr. Thus only one offer was below the Minister's maximum, and that was one of those for the fifth lot. The price is only franc lower than the Minister's, and it was offered by M. Leclerc, of the iron-works of Bois Tilleul, near Mambenge. The highest price demanded was 368 fr., or 14*l.* 14*s.* 5*d.*; and the worthy man, who had the modesty to propose such a sum was, no other than M. Mertian, of the iron-works of Montralaise—the self-same gentleman who, some time ago, got a famous trompe from M. Leon Faucher; and the very same over-zealous man, who had the cool impudence to assert that England could not turn out sheet-iron of the dimensions required for the Atlantic steamers, though it was notorious to everybody, that she had manufactured much larger sheets. It was this same M. Mertian, too, who undertook the Quixotic task of proving to the French that the iron monopoly is a blessing, not a curse—an advantage to the country, not a galling burden; and the self-same hero who declared that, after all, iron is not much dearer in France than in England. And yet look at him now! Actually asking 14*l.* 14*s.* 6*d.* per ton for his rails—more even than any of his brother monopolists, and just 6*l.* 4*s.* 6*d.* more than that week's quotation of the price of rails in the *Mining Journal!* Verily, M. Mertian is a man of brass, as well as a man of iron!

Are not the ironmasters carrying matters with too high a hand, even as regards themselves? Do they not think that they are making the burden of the poor ass too heavy to bear? Here they have a Government which acts so tenderly towards them, as actually to offer them 13*l.* 16*s.* per ton for rails, that could be bought in England for from 8*l.* 10*s.* to 9*l.* 15*s.*; and yet they twice refuse to take it—twice insist on having from 16*s.* to 18*s.* per ton more! One of two things is evidently clear: either they are endeavouring to add unjustly to their already exorbitant profits, or they are unable to supply the rails. In either case, the remedy is simple—import rails from England. The ironmasters could not complain of such a proceeding, for what right have they to fleece the public more than they already do? or what right have they to prevent the nation from importing the rails which they cannot supply?

The *Journal des Chemins de Fer et des Mines*, after putting the matter in this light, makes the following observations:—"We cannot estimate at less than 100 fr. (4*l.*) per ton the difference of the price of the maximum of the Minister and that of rails, which could be procured in England." [I may remark that, according to the quotation of English rails, given by your contemporary from the *Mining Journal* for the week ending 22d Oct., the difference in price would really have been 5*l.*, or 12*s.* 6*d.*; but, perhaps, the writer in the *Journal* allows 25 fr. a ton for carriage and import duty—which, however, is a heavy estimate.] "Now," continues your contemporary, "the 60,000 rails put up to adjudication do not represent less than 10,000 tons, there would be a saving of 1,000,000 fr. (40,000*t.*) effected by purchasing these rails abroad. If this premium of 1,000,000 fr. does not suffice for the French ironmasters, the Minister would be wrong to increase it, because its insufficiency would prove either that the ironmasters are too exacting, or unable to deliver rails within the required time." Your contemporary then adds:—"It is probable that the ironmasters will feel the danger which there would be for them, to allow a precedent to be established, which would prove their exacting disposition, or their inability to supply the country, and that they will come to an understanding among themselves, to accept the maximum of 345 fr., or 40,000*t.* premium on the first section of the railway to Rennes, is enough, if not too much." The sly sarcasm of these lines is very smart, and I have no doubt, for my part, that the ironmasters will take the hint the lines contain; but their doing so will not remove the fact, that they had the unexampled audacity to demand from 14*l.* 12*s.* to 14*l.* 14*s.* 6*d.* a ton for rails, which they knew themselves to be able to supply at 13*l.* 16*s.*; whilst, on the other hand, by not taking the hint, they will confess their inability to supply the market, and can, consequently, make no further objection to the import of rails from England. In either case, they are in what the Yankees call "a fix."

The newspaper, called the *National*, one of the principal daily journals of this city, asks, in one of its recent numbers, what is doing with respect to the investigation into the frauds committed at Havre, in the deliveries of coal, nothing having been heard of it for some time. It then mentions a fact, similar to those already brought forward. The ship *Ketor*, it says, commanded by Capt. Leroy, arrived at Havre on the 12th October. It had left in May for Sierra Leone, with a cargo recognised at the Custom-house to be of 318,248 kilogrammes, and it only delivered 255,000 kilogrammes, and, according to some accounts, had really only 225,000 kilogrammes on board. If this be true, the department of Finance, and the department of Marine, were both defrauded.

The *National* then makes some curious statements, which I think it right to translate, in the belief that they will, perhaps, interest your Newcastle readers:—"The supplies of coal," says the *National*, "are unfortunate matters to the public treasury; and we have the greater reason to be astonished therewith from the fact, that warnings have not failed to be given to the administration. We have received the following details, respecting the supplies of coal to Algeria, from a source worthy of credit. The predecessor of the present consul at Newcastle, informed by rumours that circulated among the public, addressed a dispatch to the Minister, calling his attention to the quality of the coals supplied to the State for Algeria. Strange to say, this consul received some days after a note of an employee, or partner, of the house which had contracted for the supply of the coal, in which a complaint was made to the consul of the injustice of his dispatches, and he was told that they had longer arms than he had at Paris. On the 16th of July, 1847, the ship *Franc-Bretton*, Capt. Danet, was forwarded from the Customs with 78 chaldrons, or 206*l*. 14*s.* tons—whereas, its declaration set forth 82 chaldrons, or 217*l*. 6*s.* tons. On the 27th of July, 1847, the ship *Nelly Garrow*, of Saint Vallery, Capt. Masson, was forwarded with 52 chaldrons, or 158*l*. 14*s.* tons; its declaration set forth 56 chaldrons, or 140*l*. 14*s.* tons. On the 5th of Aug., 1847, the *Theresa*, Capt. Goujon, was forwarded from the Customs for 60 chaldrons, or 159 tons; but its declaration set forth 54 chaldrons, or 169*l*. 14*s.* tons. We must add, that all these vessels were freighted with coal of the mine of Bates Hartley—a quality which cannot be sold to persons engaged at trade either at Rouen or Havre; whilst the conditions of the contract required coal of West Hartley, Carr's Hartley, and Stewart's Wallsend. At Newcastle, people do not hesitate to supply different descriptions of coal than those indicated in the conditions to the Government. The present consul appears to have signified to the Minister in particular the supplies made to Toulon. A little time back, the agent of one of the mines of the environs of Newcastle, complained loudly of this consul on one of the quays of that town. How is it that contractors, or their agents, have been able to obtain a knowledge of the correspondence of the consul with the Ministers? These are precise facts, on which it is easy for the Government to make an investigation, and to ascertain the truth." It is, perhaps, unnecessary to add, that I do not in any way make myself responsible for, or, to tell the truth, attach very much credit to, any of these statements; but, I repeat, they are only translated, in the belief that they may interest some of your Newcastle readers.

The approaching adjudication, as it is denominated, of the contract for 36,000 tons of coal to the Post-office, on the 12th, attracts great attention in our mining circles. In an article on the subject, the *Journal des Chemins de Fer et des Mines* expresses an opinion that, in consequence of the treaty of 1826, the Government would not be warranted in imposing on the contractors the condition to convey the coal to its destinations in French vessels. This confirms what I have already said. The *Journal* further expresses an opinion, that the French coalowners have every chance of obtaining the contracts, for it says their coal is almost as good, and quite as cheap, as that of England; but the writer of this article knows as well as anybody, that French coal is not to be compared with English for the use of steamers.

The shareholders of the Amiens and Boulogne Railway held a meet-

ing last Saturday, which was a very boisterous one. A number of English shareholders, headed by Mr. Macgregor of the Dover line, objected to the manner in which part of the funds had been temporarily invested—due to the delay which had taken place in the opening of the line, &c.; and he endeavoured to make these circumstances the ground of a vote of censure on the directors. But the French shareholders backed up the directors, as did also a section of the English; and, on a division, Mr. Macgregor and his party were defeated by a large majority. The report and accounts were approved, and a dividend of 19 fr. per share was declared. I am told by one of the shareholders, who sided with the French, that, if the Macgregor party had managed matters better, they would most likely have been successful; but they were far too violent—and then not one of them can speak a word of French!

In the accounts, 4,855,128 fr. 10 c. are put down for the purchase of rails up to 30th Sept., 1847; and 968,430 fr. 55 c. for chairs.

The company of the iron-works, &c., of Auber, call for the payment of the fourth fifth from 1st to 10th December next; and of the last fifth from 1st to 10th February. A meeting of the shareholders of Dordogne is called for the 12th November.

The newspapers mention, that 100 tons of copper ore have just been brought from Algiers. It is, I believe, the first arrival of any ores from that country, except as specimens.

The St. Etienne newspapers are filled to overflowing with attacks on the Loire Coal Company; but I see nothing of sufficient importance to warrant me in adding to this long letter.

It is really astonishing to see how extensively iron is coming into use. Half of the bridges on the railways, now in course of construction, are formed of it; and I have already told you how much it is used in house-building.—Paris, Wednesday.

IMPORTANT TO MINE OWNERS—THE CHARGE OF FELONY AGAINST TWO RESPECTABLE COALOWNERS.—In the *Mining Journal*, of the 23d of Oct., we gave an account of the examination and commitment of Messrs. Salter and Raybould, on a charge of extracting about 945 tons of coal from the pit of Mr. Caddick, a neighbouring coalowner. Yesterday week being the appointed day for taking the depositions, the parties attended at the public office, Wolverhampton, before J. Leigh and J. Loxdale, Esq.s. Mr. Wright and Mr. Harding (of Birmingham), and Mr. Griffiths, appeared for the defendants; and Mr. Bolton (of Wolverhampton), for the prosecution. Mr. Bailey, who, it will be remembered, we stated in our last account, had refused to appear on subpoena, now came up on a warrant, and apologised; he was the only witness examined, and stated that he was a mining engineer, and agent to the Earl of Dartmouth. He knew the Heath Colliery, West Bromwich, which the defendants leased from Lord Dartmouth, working the coal on royalty. It was no part of his duty to see the workings properly carried on, but to look after Lord Dartmouth's interest; to see the coal taken clean out, and made the best of the surface, and that his lordship had his fair right of what it sold for. He did not check White's plans with the workings, but thought they corresponded. He saw the plans occasionally; they did not inform him that the defendants were getting Mr. Caddick's coal, and if they were, the plans did not show it. White brought the plans to him, but he never saw them lay them down. He did not know whether Mr. Caddick's property was laid down on the plan. He did not recollect that there was any other property shown on the plan other than Lord Dartmouth's, but there might be. Witness never heard or supposed they were getting Mr. Caddick's coal until within the last two months; this he could most positively swear. Lately, the defendants had admitted to him that they had got some of Mr. Caddick's mine; but Mr. Salter said, he was unaware of it at the time. The defendants were ultimately committed for trial, the recognizances for their appearance being—themselves in 200*l.* each, and two bail of 100*l.* each; and Mr. Harding gave notice that, in consequence of the unusual nature of the case, it would be removed by *certiorari* into the Court of Queen's Bench.

USE OF ANTHRACITE COAL IN LOCOMOTIVE ENGINES.—An article appeared in the *Franklin Institute* on this subject, from a paper read at the Institute by Professor W. R. Johnson, and appears of considerable importance, more particularly to railways which traverse a district abounding with anthracite coal. It appears that while complete success has attended the use of anthracite under the boilers of stationary engines, and on board steam-ships, but little, if any, success has attended its employment on locomotive engines; and, after numerous trials, in many cases in America, it has been found absolutely necessary to abandon it, and return to wood, as the only available material. From all the trials which have been made, it appears the following are the chief impediments to the use of anthracite in locomotives:—1. Want of rapid ignition and rapid combustion.—2. The intense heat produced, destroying the fire-bars, attacking the rivets, blistering the plates, and fusing the ashes into troublesome clinkers.—3. The sharp angular minute pieces of coal, passing obliquely through copper tubes, cuts them away within a few inches of the ends next the fire.—4. The difficulty of fitting iron tubes to make perfect joints, and have them regular. The notices then, taking these difficulties *seriatim*, mention the various remedies that have been adopted, particularly the selection of anthracites as free as possible from slate and sulphur of iron, and it is now generally believed, that the difficulties will be overcome, and the most important results ensue to the anthracite districts.

IMPROVEMENTS IN BORING FOR ARTESIAN WELLS, &c.—We have before us the specification, with diagrams, of a new system of boring the earth for minerals, Artesian wells, and other purposes, which promises to produce a great and important change in the system generally, by securing greater rapidity of action, and, consequently, economy in the expenditure. In the old system of boring, the chisel consists of a conical box of tempered steel, with a circular cutting edge, and the bottom closed by a valve, which opens inwards. As the chisel descends by continuous percussion, the earth and stones are forced through the valve into the box, which, when full, is drawn up, and the borer again lowered. As this plan involved an enormous loss of time, in withdrawing the rods and chisel every time the box was filled, the patentee turned his attention to the devising a means for carrying up the broken strata, without so often withdrawing the rods, and has obtained a patent for a plan, which appears highly applicable for carrying out the object in view. The cutter, or borer, in the patent plan, consists of a gouge-shaped chisel, solid up to a little within the commencement of the screw, by which it is fastened to the first part of the rod. Here there is an orifice on the side, passing through the interior of the screw terminating at the top, where it is covered by a flap-valve, to prevent the return of the earthy matter, which have been chipped off from beneath. The boring rods, in lengths of 12 feet each, to any distance above this chisel, are made hollow, forming a chamber for the reception of the matter passing through the before-mentioned orifice; these hollow chambers may be carried even to the surface; but the patentee recommends that they be of sufficient length to contain the produce of one day's labour, at the top of which there is an orifice at the side for the discharge of air and water, as the earthy matter rises in the chambers above this; there is an arrangement termed a "slot gearing," to prevent concussion; and above this, by the before-mentioned system of hollow chambered rods, it is found that the drawing rods may be much smaller than are usually used, even wires of moderate thickness have been found to succeed. The patent has been taken out by Mr. James Taylor, of No. 15, Furnival's Inn.

FILE-CUTTING BY MACHINERY.—A patent has recently been obtained by Mr. E. Vickers, of Sheffield, for cutting files by machinery. Many attempts have been made to introduce machinery for this purpose, but hitherto insurmountable difficulties have presented themselves, from the variation in the hardness, or density of the metal at different points of the blank to be wrought upon; or, more plainly, when the piece of metal is softer in some parts than others, in every instance yet tried, the chisel in machinery will cut deeper in such parts than others; and as the feeding motion is regular, the chisel, in its next descent, will strike in the groove previously made, and merely widen the said groove, without forming another tooth. Another difficulty has been found from the "wind" or unevenness of the surface of the blank piece. It is stated in the specification, that, by this invention, these difficulties are avoided, the machine being so arranged, as to imitate the manual process now in use. This consists in placing the chisel edge in advance of the tooth which has been last formed, and on the smooth part of the blank, then drawing it back, until the operator feels the tooth, when the blow is immediately given with a heavy hammer, whereby the next tooth and succeeding groove are formed. In the improved machinery this is effected by so arranging the chisel, that for each groove and tooth its cutting edge is made to reach out and slide back, in a manner similar to the manual process. The machinery by which this is effected is of too complex a nature to be given without a series of diagrams, but appears well calculated for the purpose.

Original Correspondence.

THE LEAD TRADE.

SIR.—With this I forward you a statement of the ore weighed at the Grit and Batholes Mine, in 1845 and 1846—the Gravel Mine has not been in work for several years. I also send you a statement of the ore raised at the Bog Mine in 1846: I have no means of knowing accurately what was weighed in 1845, but the mine was stopped in July—consequently, very little was raised during the remainder of the year. At Penrury, the above remark will apply as to 1845; but, in 1846, they could not possibly exceed 150 tons, but I have no accurate information.

Ore Weighed at Grit and Batholes—

1845 325 tons.
1846 601 "

Ore Weighed at the Bog Mine—

1846 93 tons.

Shrewsbury, Nov. 3. A CONSTANT READER.

RAILWAY DIFFICULTIES.

SIR.—Much has been said, and is being said, of the pecuniary difficulties under which railway companies are now lying, in consequence of the monetary crisis, through which we are passing, occasioning such difficulty in obtaining money, except at enormous interest, as to induce directors generally to abstain as much as possible from making calls—thus putting a stop to extensive works under their control, and, by throwing large bodies of able-bodied men out of employment, aggravate the evil they seek to remedy. Allow me, through your valuable columns, to call public attention to a circumstance, highly in contrast with the conduct of the Bank of England and others, in refusing to accept railway paper. Some few years since, the Saxon Railway Companies were greatly in want of money, and, in fact, could not complete their works. They applied to the Government at Dresden to allow them to issue notes of hand to the amount of half of their paid-up capital, to which the Government at once assented. This placed them in a new position, the works were completed, and the Eisenbahn Gesellschaft notes are now extensively in circulation throughout Saxony; no one ever thinks of disputing them, and they are considered quite equal to Government Securities. If the English Government were to permit each railway company to issue notes, payable on demand, to a certain amount, secure to (say) double the value of such issue on the real property of the company, the directors would be enabled to proceed with their works, a large amount of the labouring population continued in employment, the public be benefited, and, at the same time, amply secured, and commerce relieved from its present depressed and fettered state. Such notes, sanctioned by the Government, would be equal to those of the Bank of England.—G. SHEPHERD, C.E.: London, Nov. 4.

SWANSEA DOCK COMPANY.

SIR.—The misunderstanding which has, unfortunately, arisen between the local and the metropolitan directors of the Swansea Dock Company, is one which I sincerely deplore. It is neither my place, nor in my power, to advise parties who so well understand their own case, and are so competent to thread its accumulated difficulties. I have not the presumption to make any such attempt; but I may be allowed, with very great respect, to suggest to both bodies of directors, that a great public work must suffer much interruption and inconvenience from the destruction and division of those councils, from which it ought rather to receive a steady and a sustaining government. If considerations of this sort, having reference to the impolicy of such disputes, are altogether disregarded—if so great an amount of internecine hostility continues, and two rival powers are still up, each claiming an adverse jurisdiction, it may be necessary to invoke the understood law of the case as a peace-maker. It is consonant, not only with the whole tenor of the statute, but with its language also, that the lesser body of shareholders, as represented by the meeting at Swansea, should yield its judgment to the larger number, as represented by the meeting in London. If the Act of Parliament directs a monthly meeting of directors in London, a monthly meeting at Swansea cannot stand in place of, or, in any sense, be a legal substitution, for such meeting. And is not the endeavour of the latter body of directors, to render nugatory the resolutions adopted at the meeting in London, a clear case of fighting with the Act of Parliament? Is it not clear, also, that no bye-law—no merely conventional arrangement among the directors—can have any force or validity whatever, as against the clear language of the statute? If the bye-law, upon which it is sought to rest the validity of the proceedings at Swansea, is a stray fancy of the directors, not in keeping with, or contrary to, the general provision and language of the Act, all administrative measures, founded upon such bye-law, would appear to be utterly and absolutely void. Failing the adjustment of these differences, from consideration of the impolicy and injustice of their continuance, would it not be the most expedient course to select three gentlemen, in whose impartiality and discrimination all parties would have implicit confidence, and submit all the points in dispute to their final and conclusive arbitration? I submit these few suggestions, with great deference to the judgment of the local and London directors, in the hope that they will concurrently adopt some pacific solution of their difficulties, and that the important public work, with whose management they are intrusted, may be proceeded with, to the enriching of the interesting port and neighbourhood for whose benefit it was designed.—A SHAREHOLDER: Islington, Nov. 3.

THE GLAMORGANSHIRE IRON AND COAL COMPANY.

SIR.—You will allow me to correct an error in your last week's Number, contained in a notice respecting Sir F. C. Knowles. The affidavit alluded to was made by me, and not by Mr. Musket, of Gloucester. It is not fair to term Sir F. C. Knowles an "unfortunate speculator," seeing that he is a gentleman of high talent and acquirements, who embarked in the Ton-du concern, knowing that it was a valuable and desirable investment, the farthest possible removed from a mere speculation, and one which, had it not fallen into the hands of parties too ignorant themselves to develop its resources, and too arrogant to allow either Sir Francis or any other competent person to point out the means of doing this, would have fully borne out the opinion which Sir F. C. Knowles entertained of its value under tolerable management. Sir F. C. Knowles has been the victim of the obstinacy and ignorance of one of his partners, combined with those happy results which usually ensue at works where the "rule of thumb" is paramount, and strictly enforced.

Coleford, Nov. 1.

DOUBLE-ACTION PUMP.

SIR.—For the information of the party requiring it, I beg to state, I have seen the above kind of pump in active operation, some years since, at a mine in Devonshire. An accident having happened to a 30 fms. 14-inch plunger-lift by the breakage of the bottom valve, it became necessary to pump the water out again by means of a bucket and rods in the column lift, a working barrel for the bucket to work in having been fortunately left in the lift of pumps; after the water was again pumped out, to allow the broken valve to be replaced by a new one, the engine was again set to work, and a double quantity of water was discharged from the lift of pumps—that is

to lay down law and rule for the practical collier, no practical man can listen to them without disgust. Such men never assisted in improving ventilation, or colliery practice generally, nor ever will. T. DRAKES.

Blaenavon, Nov. 3.

MINING IN THE PRIMITIVE CLAY-SLATE IN CARNARVON AND MERIONETHSHIRE.

SIR.—I must be excused entering into much of the details of mining in this county, having had few opportunities beyond that of a casual observer walking through it. The county—not a large one—contains nearly 800 square miles, composed of primitive clay-slate, in which are found, in channels of 50 ft. to 100 ft. wide, formed subsequently to its formation, the finest, and, by far, the easiest got slate in the known world. It is such as channels of slate, porphyry, sandstone, winstone, and other channels, which designate the term so generally used “grauwacke.” However the term may be used, there can be no doubt of its being the best slate country at present known in the world; and I am disposed to think, that no one acquainted with practical geology, will dispute the previous existence of clay-slate in a similar state to what we now find it, enclosing the secondary formation of slate, porphyry, winstone, with many other that might be named. I will, therefore, assume a theory, that everything in the clay-slate, differing materially from its original component parts and structure, is secondary to it; and that the channels before mentioned have been formed from some cause very much differing from the general formation of the country, must, I think, be clear. Having, therefore, given my idea, that all such channels are secondary, it becomes only natural and fair to ask, from what cause such channels differ so much from the rock in which they are deposited? My argument on this point may be considered weak—still I will briefly risk it, with a view to more able explanation, and say that the result of such formations has arisen from the gradual opening of such channels, arising from frequent internal convulsions changing its nature, perhaps combined with adjoining rocks—such as mica, and many others that might be named—held in solution, to a certain extent falling into such channels, there meeting with heat, galvanism, or electricity, discharged through such openings, thus forming the channels which I have described as secondary. Heat is my theory, although I believe, to the full extent, that galvanism and electricity may produce, to a certain extent, the same effect; still, in my practice, I have seen but little to convince me, that heat is not the principal agent in giving facility to deposits of this sort; therefore, I think it only fair to stick to what, in practice, we so often see bearing the strongest evidence of heat—at the same time giving galvanism and electricity the preference for as much as you can, disallowing one to make way for the other, as in practice a place may be found for the whole. Let it be explained, if heat is to be cast aside, how the malleable parts of lodes are to be accounted for. If galvanism and electricity will do all this, in situations where such has been found, then I lose a point; still, not differing from my assumed position, heat, we are sure, has issued through millions of fissures in the exterior of the globe, but now shut up. Having gone so far, I will presume on the copper and other mines of minerals, in the clay-slate of this county, beginning with the country to the south-west of Pwllheli, where there is a great evidence of channels of ground being strongly mineralised. The veins of iron, if not now, might, in times of fair prices for such minerals, from its contiguity to the sea, have been made available. The veins of lead also have been worked on channels of ground supposed to be running through it, taking a direction through the mineral district of Cardiganshire. This theory may, or may not, be correct, still, at some future day, I will endeavour to lay before your readers my views, from information hastily obtained of this part of Carnarvonshire, in connection with the Cardiganshire mines.

I will now presume to look into the country to the north-east, where I find several mines worked for copper for many years past, and still in operation, and a few small mines near Llanwyst and Tremadoc have been worked for lead. The copper line of ground, generally speaking, is on the borders of the Llanberis lakes, from north-west to south-east, as most of the fractures, or dislocations, are in that country. An evidence of craters, or the discharge of much internal heat, will be met with in traversing this line; and with care in selection, mines worth working, in this particular locality, have been found, and still may be found, but they are scarce, and their selection requires great care. I should say the selection of mines, and the embarking of capital, requires the greatest possible care, and in such country royalties should be merely nominal, till capital invested is repaid.

Having now, Mr. Editor, spent my short yarn on the Carnarvonshire mines, I will proceed to give an outline of Merionethshire, which I may do in more general terms. This county may be taken as containing 700 square miles, composed of primitive clay-slate, often mentioned in your valuable columns as being a good, at least a great, mining district; and, if I mistake not, your “leading article,” some short time since, spoke highly of certain mines and mining operations in the county. Trusting I may be excused for plain speaking, I should scarcely believe that such was your production; still I will take it as such, and answer it accordingly. In the first place, I will say, that those who are fond of a “water theory,” should go to Merionethshire, where, if they understand, and will give themselves time to think, they will conclude, that they might have walked over that country many years—nay, many centuries—earlier than over many—or, I might say, almost all—other primitive clay-slate counties in the kingdom, without burning their toes! Therefore, if I am right, speaking generally, the surface of this county was earlier shut up from the discharge of internal heat than almost any other of similar formation, and may, according to Werner, be considered a water formation, and it comes nearer to his views of theory than any that I have elsewhere seen; still it must be understood that Nature had nothing to do with the line of boundaries of the county beyond that of hills and dales, art having devised the rest—therefore, my inference must not be taken but in a general point of view, connected with mining. I could mention many mines and particulars connected with them—but the best, as far as I have seen, are not worth working. There are craters in the south-east part of the county, but in none have I seen a junction of lodes connected with them worth thinking of; still I have not seen the whole, and can only speak generally. For the sake of illustrating this great mining county, so termed, I will assume the following data, and estimate its mineral productions by the amount of royalty paid for the last 20 years, excepting a mine or two southward from Machynlleth, which I think is in Cardiganshire. Having said thus much, the royalty over 700 square miles of land, all said to be mineral ground, has not yielded a royalty for lead, copper, gold, and silver, or anything else, excepting slate, equal to 500 per annum, or 10,000 in 20 years, equal only about 7s. per square mile per annum, or the smallest fraction per acre. I should here observe, that arguments in favour of mining in this county have been often founded, on the fact of precipitated copper being found in the bogs, and that it bears evidence of its coming from a great body somewhere near, being deposited in a vein, or veins. My theory is quite the reverse of this, as, if there had been a vein to receive the mineral held in solution, it would not have been deposited in the bog—that all vegetation has strong affinity for minerals so held in clear, but the bog vegetation more particularly so; and the bog itself being a fine deposit for such deposits, where its accumulation has rested for many thousands of years. Again, the fine stones of lead and copper found, I might say in almost the highest rock at surface, particularly so in Llanuwchllyn Mountain, is with some argued as a proof of there being a great deal below it. This is contrary to my view of the case—for, had there been an opening in the surface, showing, from all trials made, that the vein closes in sinking only a few yards from the surface, as well as a diminution of the quality of ore found in it. This I take as the general rule, but admit a few exceptions to it—for instance, the “Vigna” and “Clogau Mines,” which have made copper on the junction of two or more lodes in small quantities, from 30 to 50 fms. deep, but neither has made returns sufficient to pay the cost of working; and it may be observed in these veins, that the ore was not found so close to the surface as those before alluded to. My object being wholly for the benefit of fair mining, I will presume to ask what countenance can be given to mining in such a county, where there is already too much being spent under prudent management? I shall not here advert to high royalties—for, if the lords would give up all, the county, generally speaking, could only serve speculators. It is repugnant to my feelings to say anything against mining, but feel I am compelled to do so, and say what I think right, if I speak at all.

Should this communication be inserted, I will next take a rough view of Cardiganshire and its mines. Allow me again to say, that my only object in writing this, and former letters, has been wholly from a motive to benefit mining; and if others would speak and act as I have recommended, I think, at least, we should find mining still worthy of the greatest

attention of capitalists. I would again remark, that the greater part of the losses sustained by mining arises from wild speculation, and the want of care and knowledge in the projectors regarding mining and mining matters.—A TRAVELLER: Nov. 1.

ON THE WORKING OF COAL BY MACHINERY.

SIR.—It is now some months since I entered into an engagement with Mr. Storey (to which publicity was given through the medium of your valuable and widely-circulated Journal), by which the practicability of working coal by machinery was to be tested, and the proposition divested of those prejudices, which are so familiar to theories in general. Several weeks have now elapsed since the trial was made, and one of your inquiring correspondents has noticed, in your columns, the oblivious delay which this interesting matter was apparently receiving; but I was in weekly expectation that Mr. Storey would lay before your readers, in his own words, a concise description of the experiment, with such results, as the practice may have led him to receive. I have, however, waited with anxiety and patience, until my own sympathy will not allow me to outrage those of your other correspondents; and am led to offer you the particulars that have transpired, in that spirit of honest impartiality, which ought invariably to go hand in hand with any exertion that is intended for the advancement of science, improvement of the country, and permanent safety and well-being of the working collier.

Mr. Storey lost no time in coming over from Gateshead to fulfil his share in the engagement; I conducted him first to a colliery at which I was working a “4 ft. mine;” he examined the quality, and appeared satisfied with its clearness from stone, and other metals injurious to the action of the machine, to be constructed. I offered him a new shaft just sunk to that mine, which should be entirely at his service by the time the apparatus was completed. He desired, however, to examine my other collieries before deciding upon the mind, and I accordingly conducted him to them. He found there a mine averaging from 2 ft. to 3 ft. thick, and, after an examination, concluded upon trying the machine first there, and a new shaft was set apart for the situation. I gave instructions to a respectable iron-founder to supply Mr. Storey with such mechanics and materials, as he might require for the construction of the machine; and a room was engaged, wherein Mr. Storey could fit up the same, free from the interruption, or inspection, of strangers. Here for nine weeks did he work incessantly, before he was in possession of a practical embodiment of his cherished theory; and it was no common assiduity that he bestowed on its ingenious construction. He made every exertion to have it completed, and laboured personally, with that severe attention, which such a presuming invention requires. I must here state, that the whole of that time was not occupied in the mere putting together of the different parts comprising the machine, but in changing those portions, which he found could not be reduced to convenient action, and in replacing and constructing their substitutes, until the last production was quite another thing to what he had first arranged upon. Mr. Storey then conveyed it to the shaft, and being taken into the mine, was set in a position for working. A few minutes had not elapsed before the cog-wheels were completely stripped of their teeth, and the machine lay a useless instrument in the hands of its inventor! Mr. Storey was fully sensible to the misfortune that had befallen him—at the same time, he was highly confident of its success, had it been made sufficiently strong to have borne the pressure of the coal. He desired me to allow him to construct a second, which he could simplify and strengthen, at a much less cost; but I declined, unless he would bear the expense of it, which he did not think proper to do. Mr. Storey had repeatedly stated to me, in his communications, that the expense would not exceed 15*l.*; but, on applying for a statement of its cost, it was ascertained to be upwards of 60*l.* It would, doubtless, have been something less, had he kept to his original plan; but seeing he could improve it during the construction, many things were completely useless, for which new substitutes had to be made. I did not scruple to pay for the first experiment (to which Mr. Storey alone subscribed his time and private expenses); but having satisfied myself, that what I first ventured to assert respecting the folly and impracticability of getting coal by machinery, was supported by the experience of practice, I did not hold myself responsible for a further liability or useless expenditure, in endeavouring to perfect any such absurd theory, which (in its present value of usefulness) never would be profitable to the country, or remove a single obstacle in mining, to the preservation of life. Having then seen the utility of machinery for the getting of coal under the most favourable auspices—those of Mr. Storey—and feeling the greatest anxiety for the success of the undertaking, which his perseverance deserved, I presume it will not be considered rash, or presumptuous, on my part, again to discuss the absurd theory of working coal by machinery, with a view to economy in the cost, or safety in the working. This conviction has been entirely supported in the late trial. I do not mean to imply, that coal cannot be worked off by machinery, far from it—the complicated, yet ingenious, machine I am now in possession of, would, if built of stronger dimensions, cut out the coal; but the cost of keeping it in order, the original cost, and the cost of labour to get down and carry away the coal, would be so foolishly incompatible with the present competition in the trade, that no proprietor would for a moment entertain such an impractical and expensive theory. In offering these candid remarks, I am fully convinced I shall again meet among your numerous correspondents—many theorists, who will consider it a duty they owe to science (whose progress I trust we are all interested in), to support and advocate the principle of working coal by machinery, and to charge the opponents of such a system with a narrow-minded and an obscure perception; but to such I would invite a steady application of their mechanical genius to the perfecting of an apparatus, whose practical results will show an equality of safety, combined with an economy in working. I would impress upon them the utility of giving their inventions a fair and impartial trial privately, before the public credulity is made the receptacle of any more purely theoretical fantasies. I say, that the foundation-stone of many valuable inventions has been laid in the publicity of many wild, imperfect, and untried schemes; and when men interested in the application of art, and well versed in experience, can be found willing to test the production of apparent genius, I think, in all fairness, the practical embodiment of their theory should be adduced to support such propositions, when laid before your readers. Mr. Storey's specified economy under his system, resulting in “double profits,” &c., were, I presume, written before he was aware of “Lancashire economy”; and if I mistake him not, he was apparently surprised to see the efficiency and cheapness of working the collieries in this part of the country. It is, therefore, very desirable that others should not fall into the same error, and that before they offer to teach the mysteries of mining, they should come and see for themselves; and I hesitate not in saying, they will be the wiser for their visit, and prevent the appearance of so many glaring loop-holes in their general information. I am prevented from laying before you a description of the machine constructed by Mr. Storey through an engagement made with him, in which I contracted not to disclose the principle upon which it was constructed—in doing which, he considered I should rob him of the merit and value of such an invention. If Mr. Storey is now desirous of granting the public this information, I have no doubt he will hold no scruple in placing it in his own terms of explanation; but if he still entertains the opinion that he can perfect his theory, and thereby falsify the statements I have impartially laid before you, I shall await with coolness and patience his next production. The time has not yet arrived for applying machinery to the getting of coal; nevertheless, should any novel and striking design for a really useful instrument be suggested in your Journal, I am satisfied that your subscribers would feel every possible interest in it, and give it that measure of approbation, which it might honestly and impartially merit. I wish, therefore, to remove from Mr. Storey's mind the impression, that any desire exists to keep invention stationary, and oppose everything in the shape of progression; if his proposition is considered absurd, it is because it merits no other consideration; and if he is desirous of convincing the practical portion of the world of the merits of his system, I would suggest that he applies his mechanical abilities (which are of no mean order) to the construction of a machine of a far higher cast than that which I am in possession of.

Alison Hall, Cheshire, Lancashire, Nov. 2.

JOHN DARLINGTON.

its application at Llanhiddel, Mr. Brown has advanced absurdities which indicate that his opinion on this subject is of no value. Even should the spray pump, in use at Llanhiddel, prove as inefficient as its adversaries would intimate, it does not follow that the invention is on that account to be decried; and, sooner or later, its merits will be triumphantly established. A “Newcastle Collier” condemns the spray pump, yet confesses he has not seen it at work. This is the inevitable fate of all great and original inventions; and, though I am a perfect stranger to Mr. Adcock, I can feel for him, as a man of talent struggling against the benighted ignorance and selfish prejudices of men immeasurably his inferiors in genius and attainments. Mr. Radley, who made some sarcastic remarks directed against Mr. Adcock, states, as a choice hit, directed at the latter gentleman, that he failed in smelting iron in an air-furnace. Now, I do not believe that Mr. Adcock failed in this because he did not know how to do it, but because he had not a fair trial; and though Mr. Radley may sneer at the notion of smelting iron ore by the mere draught of an air-chimney, yet it can be done; and I have done it, and have produced good grey cast-iron direct from the ore without any blast; and I trust Mr. Radley will be as successful in making steel from puddled iron, which will be far more surprising to me, should it prove of good quality, than Mr. Adcock's invention.—ROBERT MUSHET: Coleford, Nov. 1.

ADCOCK'S SPRAY PUMP.

SIR.—In accordance with the statements made by me, in your last week's publication, I shall now continue to elucidate the relations of power to effect in my patented apparatus, the spray pump, as shown by its working, in the engagement, at Llanhiddel. To do this in the most effectual, and in the most satisfactory manner, I shall select the time of the public exhibitions; and I do so for the following reasons:—1. The spray pump, then, was only worked.—2. The pit was full of water to the adit, by which I had an opportunity of admitting through the slits, and of discharging by the spray pump, not only the quantity of incoming water per minute, but an additional quantity from that reservoir, or head.—And 3. And most essentially, because several scientific and practical gentlemen were then present, who will now be able to compare the statements of Mr. James Brown and “Cassell Morlais” with my own, and perceive the correctness of the latter.

Prior, however, to entering upon these details, it may be necessary for me to observe that, with the view to depreciate my invention, both Mr. James Brown and “Cassell Morlais” have endeavoured to make it appear that the blast cylinder, at Llanhiddel, absorbed from the steam-engine very considerably more power than it did; and that, from the same motives, they, on the other hand, have given mis-statements, wilfully lessening the quantities of water raised. Mr. James Brown makes the quantity 600 gallons per minute; and the height to which it was raised, 54 ft. But he omits to state, whether such was the case at the time of the public exhibitions, or at the time simply when the sinking was being proceeded with. In either, or both, he is wrong. “Cassell Morlais’” statements are more conclusive. He asserts that his “memoranda were taken on the spot, and in the presence of several gentlemen connected with the mining interest of Monmouthshire;” and proceeds thus:—“Section of the blast cylinder, 240 ft.; depth of water blown up in 8 minutes, 2 ft. 6 in.; supposed height to which the water in the pit would have risen in the same time, 1 ft. 6 in.—making a total depth of 3 ft. 6 in., which, multiplied by the section of the pit, gives 840 cubic feet of water blown up to a mean height of 20 ft. in 8 minutes—which, by calculation, is barely equal to 4-horse power. “Cassell Morlais” (if he were at either of the public exhibitions of the spray pump—which I must be permitted to doubt) may, certainly, have made—that is, entered into a book—memoranda, in the presence of several gentlemen, without one of them being cognizant of what he was writing. Of this I am quite satisfied, that not one of the gentlemen then present was made acquainted with, or gave his sanction to, any memoranda so diametrically opposed to the facts before him. “Cassell Morlais” states, that the section of the pit is 240 ft.; the incoming quantity, 30 cubic feet—this is equivalent to 1874 gallons per minute: and the height of the lift, 20 ft. Whereas, the section of the pit, at the then water line, is 276 ft.; the incoming quantity of water per minute, 490 gallons; and the height of the lift, 54 ft. And, in addition to these, when the spray pump was first working, a quantity of water was drained from the adit level, which was 22 ft. long, and 4 ft. wide. Hence, admitting that “Cassell Morlais” is not far wide of the truth in his assertion, that the body of water in the pit was sunk 2 ft. 6 in. in 8 minutes (for it was 2 ft. 3 in. in 7 min.), we shall find that, after making the above necessary corrections for his statements, the spray pump yielded an effect equal to 20-horse power, and not 4-horse power, as he has represented it to have been. It may be shown thus:

$$\text{Quantity of water withdrawn from the pit: } 276 \text{ ft.} \times 24 \text{ ft.} \times 64 \text{ gallons.}$$

$$8 \text{ minutes. } 276 \text{ ft.} \times 24 \text{ ft.} \times 64 \text{ gallons.} = 547 \text{ gallons.}$$

Quantity of water withdrawn from the adit: $22 \text{ ft.} \times 4 \text{ ft.} \times 24 \text{ ft.} \times 64 \text{ gallons.} = 172 \text{ gallons.}$
8 minutes.
Incoming quantity per minute: 490 gallons.
Making a total of 1209 gallons per minute, equal to 12,090 lbs., raised to the height of 55 ft.
Hence, $12,090 \text{ lbs.} \times 54 \text{ ft.} = 20 \text{-horse power.}$

$$12,090 \text{ lbs.} \times 54 \text{ ft.} = 639 \text{ gallons.}$$

But even these details do not give the exact relation between the power and effect; for the slits admit of being opened to a certain width only; and as, at the time of the public experiments, the openings were at their utmost width, and maintained at such the body of water flowing through them into the upstream pipe, lessened, as the height of the column of water in the pit decreased. In order, therefore, to obtain a nearer approximation of the effect yielded by the spray pump, the calculations ought to be based on the first observation that was taken; in which the water was sunk in the pit 20 ft., or a foot and two-thirds, in 4½ minutes. The calculations will then stand thus:

$$\text{From the pit: } 276 \text{ ft.} \times 13 \text{ ft.} \times 64 \text{ gallons.} = 639 \text{ gallons.}$$

$$4\frac{1}{2} \text{ minutes.}$$

$$\text{From the adit: } 22 \text{ ft.} \times 4 \text{ ft.} \times 13 \text{ ft.} \times 64 \text{ gallons.} = 304 \text{ gallons.}$$

$$4\frac{1}{2} \text{ minutes.}$$

$$\text{Incoming quantity, per minute: } 490 \text{ gallons.}$$

Exhibiting a total of 1233 gallons, or 12,330 lbs., per minute, raised to the height of 54 ft.
Hence, $12,330 \text{ lbs.} \times 54 \text{ ft.} = 22\text{-horse power.}$

$$12,330 \text{ lbs.} \times 54 \text{ ft.} = 630 \text{ gallons.}$$

But those who were at Llanhiddel will recollect that, in addition to the above, a considerable quantity was drained from the adjoining pit, and other quantities fell back into the pit from the launder, and had to be raised. I will, however, allow the 1233 gallons, of water per minute, is a large quantity; and those who were present may recall to mind, that it was quite as much as that, by the following:—At the bottom of the receiver, in which the water, after it is raised, is collected, there is a pipe leading vertically downwards to the extent of 5 ft., to convey the water, when in a solid state, from the receiver to the launder. The bottom part of that pipe is 9½ in. diameter; and at the top, near its junction with the receiver, it expands, bell-mouthed, upwards, from 9½ in. to 11½ in.; yet the body of water was so great, that that pipe became choked, and the water in the receiver stood, in a solid state, 4 in. above its bell-mouth.

The vertical pipe, by a bend at the bottom, delivered the water into the launder; and it flowed thence into a zinc tube. In that tube was an orifice 12 in. diameter, through which the water was discharged into a channel, and thence, through a culvert, into the river. At the first part of the experiment, when the head of water had not subsided to any extent in the pit, that 12-inch discharging orifice was maintained constantly full, to the stream of water flowing through it—which is a convincing proof of the quantity: as it is well known to practical men that a 12-inch orifice, or 6 in. above the top of it, will discharge 1440 gallons per minute. Again, as stated by your correspondent, or representative, in the *Minning Journal*, of 26th June, the culvert, 11½ in. wide, and 8½ in. deep, although with a rapid fall, was barely sufficient to carry the water away. These, therefore, are sufficiently corroborative of the fact.

I have now shown, by these investigations, that the blowing cylinder, at Llanhiddel, has been worked to the same amount of pressure, per square inch, as I there employ, by a 264-horse power steam-engine, and that the effect yielded by the spray pump was 22-horse power. I now state further, as an axiom, that, had the same body of water been raised 11 feet higher, the effect yielded would have been 36½-horse power; and, had the additional lift been 20 feet, it would have been 30-horse power.

such facts, as will alone satisfy your readers, in the mining districts, of the merits and value of his invention. It is to be regretted, therefore, that Mr. Adcock should dwell at such length as he does, in your paper, of the 20th October, on each particular alleged mis-statement made by two correspondents. This course may show the writer's critical acumen; but I am sure that plain practical engineers would rather learn from him the facts, unadorned with irrelevant matter, such facts being elicited by these statements—Mr. Adcock leaving it for others to gainsay what he thus avers, if they can, and, at the same time, to draw their own conclusions whether the facts so stated are *bona fide* evidence of the superiority of the spray pump over the mode of pumping in common use. But, observe the course he pursued. He occupies more than half a column of your paper to combat the statements of a writer in your columns—and (what is hardly fair) a party also who is a writer in another Journal—in exposing several inaccuracies, and proving that engineers and inventors understand the correct dimensions for blast-cylinders. This fails to be very ingenious trifling. It shows that Mr. Adcock can write, and write a good deal, to little purpose. I will presume that the spray pump is *bona fide* (as the patentee states), a perfect machine, and I may confidently assert, that its merits are hid under a bushel, by the system of special pleading adopted in every paper that has yet emanated from the inventor. Facts are, as much now as ever, stubborn things; and I should prefer a diagram of the pit and apparatus, at Mr. Blewitt's Colliery, at Llanhiddel, to a volume of literary wrangling.

Mr. Adcock should state exactly how the case stands—the power of the engine, size of blast cylinder, average flow of water into the pit, quantity of water raised, from what depth for what period, and the depth that the pit has been sunk since the spray pump has been in operation; with the expense, compared to the expense and work that would probably have attended employing the common pump. It is also important to know the longest period that the spray pump has been continuously at work, as an impression prevails that it is subject to many stoppages. What perplexes myself and others is, to understand how an engine of any given power is to do as much work (I will not say more), by having first to compress air, instead of acting directly on pump-rods. Has Mr. A. made some discovery in pneumatics, as in his pamphlet he appears to intimate, though darkly, that he has done? Comparing the two methods, the resistance to be overcome must be as much the same in both cases; and against the gain of working the compressed air in the downcast zinc pipe, and that of the air and water in the upcast pipe, which must be absolutely enormous. Again, we must not lose sight of the expense of cast-iron pipes, when they come to be substituted for those of zinc, which make a very tickling affair of the invention. I am not aware that Mr. Adcock professes to generate power. In this respect his invention seems to be in the same predicament, with all the proposals for air-engines to supersede the steam-engine, for they only give back the power expended on them, less a heavy discount! A pump to work without rods, check valves, &c., for mining purposes, was patented long before the spray pump, by a professional gentleman, a surgeon; and, more recently, a Mr. Carson patented a somewhat similar invention. Mine-proprietors are too well aware of these, and other feasible, schemes; and the history of their failures, and the heavy losses entailed by them, are too fresh in their memories, for them to be induced to abandon an old-established and well-tried system for any other mode, unless recommended by something more than novelty. Mr. Adcock should, therefore, hasten to draw aside the veil of mystery that so injuriously envelopes his operations at Llanhiddel. We live in an age when prejudices quash before the stern majesty of scientific truth, and when true genius has nothing to fear from the blind opposition of ignorance and self-interest.

ROBERT DUMBLETT.

Green Hayes, Manchester, Nov. 2.

ADCOCK'S SPRAY PUMP.

Sir.—It is easy for men, of very ordinary capacity, acquainted with the first few rules of arithmetic, and with a smattering of knowledge, picked up from publications on mechanics, to affect all the consequence and wisdom of first-rate engineers and philosophers. I shall not imitate this class of writers—on the contrary, I at once candidly confess, that I have no knowledge of mechanics, practically or theoretically—and, in complying with the wish of one of your correspondents, in a late Number, that I should give what information I possess on the subject of the spray pump, I have no other desire than that the truth should be known. I will first give the history of my connection with the spray pump.

Being interested in a large coal-field, at Llanhiddel, extending over nearly 1000 acres of mountain land, within the mineral district of Monmouthshire, I, about two years and a half ago, ascertained, by boring, that there was a vein of coal, 3 feet thick, lying under that property, at a depth of about 65 yards; and the presumption, from this discovery, being, that the other veins usually found below would also be in place, I ordered an engine, of great power—36-inch cylinder, 6-foot stroke, and three large boilers—in order to meet any casualties that might occur in sinking to the deepest veins. I had not then heard of the spray pump. The engine and necessary erections connected therewith were not completed until the summer of 1846, when I commenced sinking, in the usual manner, with a 12-inch pump—the working of which was so arranged, that it took three strokes of the engine to produce one of the pump. At the depth of about 25 yards, the incoming water had so much increased, that it could only be kept down by driving the engine 20 strokes per minute—making 10 strokes of the pump—a rate of speed which I considered imprudent and unsafe, and I had, therefore, determined to have a larger pump.

At this time I heard of Mr. Adcock's invention. The engineer I had employed to make my engine, &c., at Llanhiddel, was a Mr. Wm. Vincent Wennington, since deceased, who was a young man, of rising eminence in his business—a good mathematician and practical mechanic—of a student, and far from a *speculator*, character; and he had, moreover, great practical knowledge and experience on the subject of compressed air, its power, properties, &c., having been largely engaged, and very successful, in the making of blast-engines and cylinders. In the month of August, 1846, I requested Mr. Wennington, who lived in Staffordshire, to see the spray pump, then in experimental operation, near his residence, and to give me his opinion upon it professionally, and as a friend. On the 3d Sept., 1846, Mr. Wennington wrote me thus:—"I have spent considerable time this week in investigating the merits of the blast-pump apparatus, and I am satisfied of the importance of the invention. With a few alterations in the details of the application, I think it can be made an admirable thing in mining operations—equally efficient at 1 as 1000 yards in depth." On the 12th Sept., 1846, Mr. Wennington said, in a letter to me:—"I am more and more convinced of the importance of the invention; it will, in the first place, save half the expense of pump trees, brackets, &c., besides which, there is no wear and tear at all. The principle is as unerring as any recognised law of Nature can be, and the application of it is both simple and effective."

In consequence of Mr. Wennington's opinion, I invited Mr. Adcock to Llanhiddel, and ultimately, with Mr. Wennington's full concurrence, and under his advice, I made arrangements for the application of the spray pump to my pit at Llanhiddel. After considerable delay, arising from Mr. Wennington's long illness, and subsequent untimely death, the apparatus, in its simple form, was completed. A trial, made before some of the principal ironmasters and coal owners of the district, and the principle of the invention, was, as I considered, then clearly proved and admitted.

I had then to apply the invention to sinking. In sinking, it is, of course, necessary that the water at the bottom of the pit shall never exceed a few inches in depth. The spray pump requires for its action a certain amount of water above the silt. The only way, therefore, in which the spray pump could be made available for sinking, was to raise the water from the bottom of the pit by the common pump to a certain distance, and thence to discharge it into a reservoir, in which the bend pipes should be placed. This arrangement was carried out, and completely answered the purpose; but the sinkers have always been very much prejudiced against the invention, and as in this form, it is more complicated, and attended, in so slow a pit, with little or no diminution of expense, I am not inclined to recommend, nor do I recommend, this adoption of the spray pump for sinking. With this exception, I am of opinion—as far as my humble opinion is entitled to any weight—that the spray pump, for the purpose of raising water from mines, has been, and may be, considered eminently successful. Nothing can be more simple than the apparatus required for a pit sunk to its intended depth. The following is a plain practical view of its operation:—The bend-pipes communicating in their downcast length, with the air reservoir; and, in the upcast, with an open tub of zinc, having a zinc cone suspended over the centre of the pit to collect the spray, and immersed in a sumpt, at the bottom of the pit, having not less than a certain altitude of water.

The engine is set to work; the silt being gently and partially opened, a sort of struggle would at first seem to commence between the air and the water. In a few seconds, the water, dispersed into the most minute particles, is seen to rise, and, striking against the cone, to fall into the bottom of the receiver, from whence it flows away in a large stream—while the particles of air, emancipated, as it were, from the weight of water, rush together, and make their escape at the top of the receiver, left open for the purpose—a wider opening of the silt, and an increased action of the engine, produce such an upthrust of water in the form of gigantic drops, and such a whirlwind of air struggling for expansion, as it is not easy to conceive or describe.

Much has been said as to the great power of an engine; and it has been most untruly asserted, that nearly all of its power is necessarily used in raising water by the spray pump from a pit of 80 ft. deep. The engine, as I have before stated, was provided, *ex abundanti canticula*, to meet all casualties that might occur in the old and ordinary manner of sinking; and I believe it will not be denied by any experienced worker, that a sufficient power, though, for a time, it may be attended with apparent loss, is often, in the end, the truest economy. The large dimensions of the beam, cylinder, and other parts of my engine, of course, require a large supply of steam to keep it going; but a pressure of 15 or 16 lbs. to the inch on the boilers has, I am assured by my chief engineer, been found ample sufficient to keep down, by the double pump used for sinking, the incoming water—say, 500 to 600 gallons per minute—and what could be done by the full power of the engine is as yet unknown; as, when any great power has been applied, the existing pipes have proved inadequate to discharge the water raised; and when the cones, suspended over the top of the pit, have been removed, the water has been blown into the air to the height of 100 ft., and more.

What may be the limit of the power of the spray pump, I have no means of forming an opinion; but I believe, with Mr. Wennington, that it may be made as effective at 1000 yards as at one. Unless the "friends of science" in your Journal should succeed in terrifying certain parties, who had prepared to adopt Mr. Adcock's invention, it will very soon be tried in deep pits; and the result will be for ever set at rest—for better or all theoretical opinion—the merits or demerits of "the spray pump."

London, Nov. 4.

REGINALD J. BLEWITT.

[ADVERTISEMENT.]

TO REGINALD JAMES BLEWITT, Esq., M.P.

Llanhiddel, near Newport, Monmouthshire.

Sir.—I must be permitted to observe upon your last favour in the *Mining Journal*, and I think it best, upon several accounts, to address you personally. I will not long intrude on your legislative leisure; for in points of difference operating upon life, private or civil, unless some fundamental principles are concerned, or taken for granted, all that may be delivered, however cogent and powerful, must be only in an analogous plight to those "pearls" which Solomon's dictum has rendered a commonplace.

These acknowledged truths must often remain unexplained; for there are facilities, which only by a miracle can be enlarged to the reception of their own short coinings. Still at times, however hopeless the endeavour, the misapprehension of absurdity, or the *stolidities* of self-interest, obliges a man to prove elements on common axioms, for which nations cannot easily be found more intelligent than those which are already misunderstood. To minds of such a cast as that of a honourable individual, who could take the occasion of a friendly exposition, to vent against the character of another aspersions which have not the shadow of foundation, it must, indeed, be difficult to prove the first principles of gentlemanly practice and conduct; because, not having been already ascertained by experience, the most operose deduction is likely to fail; for it is vain to endeavour to make that palpable, which, by the nice apprehension and tact of persons in the position of life which you have the honour to occupy, can only be felt.

It was allowed to the disputant of old, to yield up the controversy, with little resistance, to the master of forty legions. Those who know how weakly naked Truth can defend her advocates, will forgive me for paying the same respect to a Member of Parliament.

But, though I shall leave the lists to others, so far as the merits or demerits of Mr. Adcock's spray pump is concerned, the consciousness of my own rectitude of intention and conduct, incites me to inquire, what means this vox *ambigua* insinuated against me?

It is not that you "hint a fault and hesitate dislike;" you do more—you would have the readers of the *Mining Journal* believe, that there remains behind something to my

prejudice, too terrible to be spoken even by yourself, who ventured the assertion, that my "name in this district, was known as a by-word for scorn and contempt." After such an instance of virulence and asperity, and your giving no evidence for your having kept back ought that in truth could affect my character, what you would further insinuate to me, can only be ascribed to disappointed malice. My reputation, thank God, is safe where I am known. My quiet is safe, for I have meant well, and have only laid on the lash upon manifold provocation—for any other possession, save that of my reputation and my piece of mind, I am not used to be very solicitous. Why the names of Mr. Abraham Darby, and of Mr. Thomas Brown, should be introduced, I cannot fully comprehend. You must be aware, that I am under no obligations to either of them, and that the former gentleman is, at least, as much my personal friend as your own. It is probable, that he will feel some compassion for your tumultuous resentment; but all your invectives against me fume into the air, and will have so little effect upon him, that, from henceforth, he is not likely to esteem you as a man that has the merit even of meaning well. Your introducing his name into the controversy, is as gratuitous as your onslaught upon my character. As respects my brother, he and I have always been upon most excellent terms: he has signified to me his sympathy with my annoyances, and his extreme indignation at the conduct of my libeller—nevertheless, if you wish to give an explanation of that dark speck upon my character you allude to, until Mr. Thomas Brown should challenge and provoke it, I am likely to remain in my present state of dubiety, in *secula seculorum*. The very idea of my brother's "challenging and provoking," is ineffectually ridiculous. When a man is incapable of feeling how wrongly he has acted, he ceases to produce his proofs upon an impossible contingency?

Though zealous as any gentleman need be for the purity of my good name, were it assailed upon any rational grounds, I can view a diatribe from your pen with the placid happiness of philosophic indifference; but I cannot avoid advising you to restrain even the bitterness of your malevolence within due limits, lest it should sometimes swell too high—fill the whole capacity of your soul—and leave less room for your enthusiasm in favour of "Adcock's spray pump."—JAMES BROWN: Newbridge, Nov. 3.

IMPROVEMENTS IN MANUFACTURING IRON.

Specification of patent granted to Patrick Moir Crane, of Ynyscedwyn Iron-Works, near Swansea, ironmaster, for Improvements in the Manufacture of Iron.—*Newton's Journal*.

This invention relates to an improvement in that part of the manufacture of malleable iron, where what is called *refined* iron is produced by melting pig-iron in a refinery furnace; and it consists in a mode of employing anthracite or stone-coal in the process of making refined iron. The patentee says, he is aware that this has been before attempted, but without success, on account of the peculiar character of the anthracite or stone-coal, which is liable to decompose and fly off into dust on sudden exposure to heat; now, the present invention consists in subjecting the anthracite or stone-coal to heat, before introducing it into the refinery furnace. The preparatory heating may be effected in any convenient way; and the coal may be used either in an ignited or highly-heated state, or they may also be employed in a cold state (having been first ignited or highly-heated). After the before-mentioned preparation, the coal will bear either the hot or cold blast; and whichever blast is used, the patentee prefers that it should be introduced through two or more small tuyeres, instead of one large one. The refining process is conducted in the same manner as when coke or charcoal is used. In the manufacture of pig-iron, by the aid of anthracite coal in the blast furnace, a considerable quantity of highly-heated anthracite coal comes from the furnace in lumps, in that process commonly termed by the workmen throwing off; and the patentee introduces these lumps in a heated state into the refinery furnace, or preserves them for future use. Or, instead of employing these lumps, the patentee causes the raw anthracite coal to be ignited in masses in pits, kilns, or ovens, and, when thoroughly ignited and heated, he carries it direct to the refinery furnace, or preserves it for future use. Although the patentee has used the anthracite coal alone, other fuel may be employed therewith.

The advantages said to result from the use of anthracite coal, according to this invention, are—that a considerable saving is effected in comparison with the coke of bituminous coal, the cinder containing less iron than that from a blast furnace worked with the coke of bituminous coal; and in those districts where anthracite or stone-coal can alone be obtained, manufacturers of iron will now be able to refine their iron, which has hitherto been the case. The patentee claims, as his invention, applying in the manufacture of refinery iron, anthracite or stone-coal, which has been ignited or raised, to a high temperature, before introducing it into the refinery furnace.

RECENT AMERICAN PATENTS.

[From the *Journal of the Franklin Institute*.]

ANTHRACITE COAL.

For an Improvement in the Furnace of Steam-Boilers, Stoves, &c., for Burning Anthracite Coal: Ezra L. Miller, Brooklyn, New York; July 7.

"My improvement, which I designate a boiler furnace, consists in making a new arrangement of the furnace or burner, for producing the most active combustion of the fuel, at or near the base of the fuel, and so near the grate bars, as always to insure the necessary supply of air to effect a perfect combustion; the combustible portion of the smoke and gases, liberated from the fuel, being consumed by passing through the most intense heat of the fire, in their escape from the burner, and by combining with this arrangement, a reservoir or chamber for fuel, above the line of draught, of sufficient capacity to contain fuel for any desirable length of time, which, as the combustion proceeds, settles in the base of the burner, and thus becomes self-feeding, until the fuel is consumed."

Claim.—"What I claim as my improvement, and wish to secure by letters patent, is the peculiar manner, as fully described and set forth in the above specification, of constructing the base of the fuel chamber with the off-set or enlargement, so as to admit of taking out the smoke flues or tubes through it, or near a vertical direction at the top of the burner, and around the circumference of the fuel chamber, and, by these means, adapting it to a furnace for boilers, as well as to stoves and hot air furnaces."

RAILWAY WHEELS.

For making Tire for Railroad Wheels: D. Saunders, of Cincinnati, Ohio; J. G. Bissell, Covington, Kentucky; and S. Saunders, Pittsburgh, Pennsylvania; July 28.

The following is the mode of procedure:—"A pile of iron and steel is made as follows—first, a large bar of iron, then a thin bar of steel, then another bar of iron, the latter being thin, and serving only as a protection to the steel from being burnt in the process of welding, the whole is then welded. The bar is then passed through a series of rollers giving the required shape to the tire, shrunk on to the wheel, and the thin plate of iron turned off to expose the steel to the surface."

Claim.—"What we claim as our invention, and wish to secure by letters patent, is the manufacturing tire for railroad wheels, as herein described."

LOCOMOTIVE ENGINES.

For Improvements in Locomotive Steam-Engines: Ross Winans, Baltimore, Maryland; July 28.

Claim.—"Having thus fully set forth the nature of my improvement, what I claim and desire by letters patent, is the employment of wheels of small size, as above mentioned and described, with wrought or soft iron flanges, in combination with an engine having six or eight driving-wheels with axles, parallel to each other, and accommodating itself to curves and turnouts, by any of the devices or modes herein described for that purpose, and having the power applied to all the axles by connecting rods and cranks."

LAMPS.

For Improvements in Lamps; T. F. Strong, a citizen of the United States, residing in London, England, July 7, 1846, antedated May 1, 1846.

Claim.—"Having thus fully described my improvement, what I claim therein as new, and desire to secure by letters patent, is constructing the reservoir in the manner described, so as to prevent the oil from leaking out over the cover—whilst a flat broad receiver is retained, as herein set forth. I also claim the raising and lowering of the thumb, or wick-holder, by means of the screw, constructed, arranged, and combined, as herein set forth. I claim the cup, or sunken chamber, for heating or supplying air to the outside of the flame of an Argand lamp, as specified. I also claim constructing the deflector with holes around and below its upper edge, in the manner and for the purpose described. I also claim the lamp chimney, formed of glass, with two contractors, substantially as above made known."

THE GREAT RAILWAY VIADUCT OVER THE BOYNE AT DROGHEDA.—On

Tuesday last, Sir John MacNeill and Mr. Crozier, on the part of the Dublin and Belfast Junction Railway Company, attended a special meeting of the committee of the corporation to submit the completed plan of the bridge intended to be laid over the Boyne. The bridge, as represented in the plan, will be a beautiful piece of architecture, composed of iron lattice-work, and supported on four columns; it will at once combine immense strength, with apparent lightness. The height over the river is 95 ft., and the span between the two inner columns 230 ft., so as to permit the free passage of ships, &c. On the south side of the river will be erected a wharf, by which goods may be shipped or transhipped. This quay is not, however, to be exclusive property; the public shall have a right to its use. From each side of the bridge the railway will be continued over handsome gothic arches up to the main land on either side. One of these will be an inclined plane, commencing at the engine-house, and slanting down to the wharf; the other, a common Macadamised road, leading also to the wharf from the Mornington-road. The inclined plane will also be supported on a series of arches. We understand that this stupendous work will soon be completed, and it is expected, under the present plan, that it can be completed for about 50,000/- *Irish Railway Gazette*.

NEW APPLICATION OF THE CENTRIFUGAL GOVERNOR.—Among the latest fruits of American ingenuity, is a horse-power to which a centrifugal governor (like that used in steam-engines) is attached, which, of its own accord, pulls up the horses when they go too fast, and begins whipping them the moment

DESIGNS ACTS, AND THEIR AMENDMENT.—No. III.

BY F. W. CARPENTER.

A right understanding of the utility of the Designs Act can only be formed by a rigid scrutiny of the Act itself—accepting each phrase of it as a positive dictum, that admits neither of expansion or contraction, and taking each word in its natural and inevitable sense alone. If the statute be referred to, it will be found that it opens with the enactment, that for the future, all persons entitled to the proprietorship in *any new or original design*, having reference to some purpose of utility, &c., shall be ensured the exclusive enjoyment thereof for the term of *three years*, upon certain conditions already explained. Thus, it becomes necessary, to a right judgment upon the nature and extent of the Act, that the meaning of the word "design" should be properly understood. This we find defined as "a scheme"—a term that gives to the operation of the statute a sphere of sufficient magnitude to admit any improvement in the art, except, perhaps, a chemical discovery; for, if a design be "a scheme," a scheme signifies a contrivance, and a new contrivance be only another term for new invention, it follows that the terms, "new invention" and "new design," are convertible terms; and, so far, there is nothing in the wording of the Act shutting out new improvements in working machines, apparatus, or instruments, which it is the daily practice to submit to its operation. Indeed, did the statute stop short at this point, it might be maintained, that it created a system of short patents; and the Government dues being small (10/-),

RAILWAY BRIDGE IMPROVEMENTS.—While the strength of bridges over rivers, &c., for the passage of railway trains, is a question occupying so much attention in the engineering world; and while, also, the immense cost of our present lines, with their concomitant structures, has become a question of the most grave consideration among railway proprietors, every suggestion of, and step towards, improvement, combining due strength, with vastly increased economy, is of the utmost importance. Without, of course, attempting, in the slightest degree, to derogate British native engineering talent—as should any have the temerity to do so, the most splendid structures in the world, by Telford, Smeaton, and others, would falsify the attempted libel—still, it is an absolute and evident fact, that the great railway movement of the last 10 or 12 years has absolutely rendered engineers, as a body, “intoxicated with popularity;” which, in addition to their time having been so thoroughly occupied, has prevented those improvements in bridge-building which might have been expected under other and more favourable circumstances. Either the principle of the old arch has been adopted, or else the suspension, or the well-known bow and string, or, in place of these, enormous cast-iron girders, are employed, forming level bridges, which, as has been so often, unfortunately, verified, are unable to support their own weight, much less that of enormous trains passing over them. The attention of some engineers has, however, been drawn to the consideration of adopting some principle different to all the foregoing, which shall combine great strength with lightness of material, and consequent economy: we may mention the names of Motley, Dredge, and others, whose plans have not, however, been carried out for railway purposes. We have this week been favoured with an inspection of a bridge, for railway or other purposes, of an entire novel construction, and which, while it combines lightness of material, and economy in cost, possesses enormous strength from the peculiar arrangement of its different parts. The model is 4 ft. 6 in. long, weighs 12 lbs., and bears 1500 lbs. The two principal bearers forming two roads for the up and down trains, on which the transverse wood sleepers or joists are laid, for the support of the floor, consist of iron bars formed of two plates each, so united as to form a Δ in section, while the upper rail to which the top of the upright supports are connected, is of T iron of the necessary strength; the joists are laid in pairs, with sufficient space between to admit upright bearers, which are formed with a shoe, which fits into the hollow of the Δ rail, and are bolted through the wood joists or sleepers; the upper part of these supports are formed with a clip, which takes on to the lower part of the T iron, and, instead of bolts, are wedged close up to it; each of these uprights have also a strut pointing at a slight angle inwards, and bolted also to the sleepers. From the top of each of these supports, flat iron bars extend right and left at an angle of 45° , bolted to the top and bottom rail, but not to each other, at their points of intersection—thus forming, to all intents and purposes, suspension rods. Round iron rods, placed diagonally beneath the base of the floor, form a mainstay to the principal bearing rails, and brace the whole up tight and secure. The principle of this bridge appears to us to be one in which but little vibration or oscillation can take place, while in strength it may evidently be made to bear any weight required to pass over it. There is just sufficient curve to allow of the weight of a heavy train, deflecting it to a plane, and thus it may be considered, in all respects, a level bridge. One of these bridges has been erected on the New York and Harlem Railway (see advertisement) of 70 ft. span, weighing but 13 tons; another, also, was erected, 40 feet span, weighing only 2½ tons, and which has borne over it, with no more than the calculated deflection, 25 tons. The principle is such, that a given weight, placed on any part, is extended over a considerable surface of the whole structure, and hence its great bearing powers. The model is well worth inspecting.

RAILWAY BRIDGES.—We have received another communication on railway bridges, from Mr. J. Thompson, who proposes a peculiarly constructed iron tubular bridge, to be composed of iron plates, riveted together, forming rectangular tubes, with flanges so arranged, that all might be well and strongly riveted together. These tubes are to be laid in tiers, in such manner that each succeeding one in height lays over the joint of the two below it—so that the structure is broader at the base, and diminishing upwards to the required height, for the width of the rails. An elevation of this proposed bridge presents a contrary view; the lower tier, which is the broadest in section, projects only a certain distance from the pier in which it is embedded, the second a proportionate distance further, the third further still, and so on until the top range of tubes, which bear the rails, and which are the narrowest in section, extend over the whole length required, and bind all firmly together. It would, undoubtedly, be a bridge of great strength; but we fear it would be objected to as having enormous weight in itself, and being very costly in proportion to many other plans.

IMPROVEMENTS IN CARRIAGE BREAKS.—The innumerable, and among them the awfully fatal, accidents, which have occurred from the absence of sufficient break power to stop a heavy train going at a high velocity, has caused a host of inventions to be introduced; some of which have been very futile things, and some very great improvements, on the old form of break, yet, even of these, but few have come into use—the greater part of the railways still employing the old form through the influence of their eminent engineers, who cannot bear the introduction of any invention, but their own, however superior they may be. We have this week inspected a new kind of break, patented by a Mr. Lee, and now being taken up by a company, with offices, in Moorgate-street. It consists of a break block beneath each wheel, or one pair of wheels, of a certain number of carriages in a train, as may be required; this block is attached by connecting rods to a lever, working on the axle as a fulcrum. From the top of this lever, a connecting rod leads to a bent lever; on the extreme end of which is another connection rod, with a screw box on the end, which is raised or lowered by the guard on the top of the carriage, turning a winch handle, by which the break is either pressed with great force on the rail under the wheel, or put out of gear. The plan was in operation on the Croydon line for 20 weeks, when, we are assured, it was found to have 11 times greater breakage power than the old break; and a train, going at the rate of from 30 to 40 miles an hour, could be stopped in less than 100 yards, without the passengers being aware that the break had been applied. This break can also be put into action, in right of the same patent, by a buffer acting upon a rod and spring, whereby the train stops itself. It can also be applied by the engine-driver, in cases of extreme danger, by a steam-pipe from the boiler, stopping the last carriage first—thus preventing the least collision. We understand the following testimonial, expressive of its merits, was signed by nine guards who had used the break:—“We, the undersigned, being guards engaged on the London and Croydon Railway, do hereby certify to the power and efficiency of Mr. Lee's patent break, which we have found to act upon the rail so readily and powerfully, that we were thereby enabled to bring the train to a dead stand in a much shorter distance and time, varying from 55 to 100 yards, than any other breaks which we have used; and we believe that, by the use of these breaks, the chances of collision and accident in working railway trains will be much diminished. The break was in use on the London and Croydon Railway for about 20 weeks, during which period 10,675 stoppages of the train was effected by this break.” When we consider that it was sworn in evidence, on the inquest on the bodies of the sufferers at the Wolverton accident, that a train could not at that velocity be stopped under 500 yards, it is clear that, if directors will not adopt proper safety principles, when offered to them, it becomes a duty devolving on the public to compel their adoption.

THE DOUBLE-ACTION PUMP.—We have received from a correspondent (“J. D. T.” of Worsley, near Manchester), a diagram of a double-action pump, having two working barrels, connected with a larger cylinder between them, in which the piston works—giving out an even quantity of water at the up and down stroke of the piston. It is nearly on the same principle as those which have been described in our columns; and, while we do not think a diagram on the subject necessary, we return our best thanks to our correspondent for his attention.

IMPROVEMENTS IN EXPRESSING OIL.—A patent for a new instrument for pressing oil, &c., has been obtained by Mr. Robson, of Dover, in which is substituted a perforated metal instrument in lieu of hair, which has been generally used for enclosing the flannel bags containing the substance to be subjected to pressure, but which is found very soon to become clogged. This instrument consists of an oblong plate, with a raised rim, to prevent the material from being pressed beyond the edges. Across this plate, at intervals, are alternate ridges and depressions, the latter of which are perforated with numerous holes; another similar plate, but rather less, to fit inside the rim of the former, has ridges also, but so placed, that they fit into the depressions in the lower one; and, when subjected to pressure, effectually extract the oil, and without clogging the strainers.

IMPROVEMENTS IN LUBRICATING MACHINERY.—Mr. Carter, of Oldham, has secured a patent for a new system of lubrication, by which a certain portion of oil, or other fluid material employed, is supplied to the axles, or the shafts in machinery, between any certain number of revolutions. It consists of a flask of the oil, with its mouth downwards over the journals, or parts, to be lubricated: this flask is kept slowly revolving by machinery connected with the shaft itself, and has holes for suffering the escape of the oil so placed, that it flows only at intervals (say) once in 5000 revolutions; or the machinery can be regulated to any other number.

THE ARRAS FOUNDRY.—We perceive that this immense and justly-celebrated establishment, founded by the late M. Hallette, is announced for public sale, at Paris, on the 16th inst., if not previously disposed of by private contract. This vast foundry, established in 1815, by M. Hallette, is most advantageously situated at Arras (department of the Pas-de-Calais), close to the Belgian frontier, the sea-ports of Boulogne, Calais, and Dunkirk; it is also in the vicinity of coal-mines, by which its fuel is obtained at a lower price than at any other establishment of the same nature in France. Placed in the centre of the departments of the Nord, Pas-de-Calais, and the Somme, it manufactures the principal machines and tools used by the numerous factories in that locality—the richest and most industrious in the country. The river Scarpe, and the Great Northern Railway from Paris to the frontiers of Belgium, which has a principal station at Arras, thus gives easy transport from Belgium, and the extensive coal-pits of Mons and Valenciennes; and for the conveyance of its wrought material to every part of France; and, when the railway from Boulogne to Amiens is finished, further facilities will be afforded. This establishment has furnished the best and most powerful steam-engines of French manufacture—viz.: for the Royal Navy, the engines of the *Fulton*, *Phaeton*, *Sextant*, *Acheron*, and *Meteore*, of 160-horse power each; of the *Groenland*, *Paramo*, and *Montezuma*, of 450-horse power each; of the *Alexandre* Post-office packet, 220-horse power. The steam-engines in operation upon the successful atmospheric railway from Paris to St. Germain, numerous large pumping-engines for the mines of the north, the Loire, and other renowned mining districts; and the locomotives for the Northern Railway were constructed at this establishment; and they have now in course of construction the engines for the *Exemdale* and *Gorgone* steamers, each of 200-horse power, belonging to the Royal Navy; the whole stock of locomotives, tenders, and wheels, for the Montereau and Troyes Railway; besides a variety of other machines. The buildings occupy a surface of upwards of four acres; and, originally, cost more than 187,000*£*. It is the most complete establishment that France can boast of, having done an annual business of from 60,000*£*. to 80,000*£*. The reserve price of sale is 42,000*£*, to be paid by instalments, every three months.

UNIVERSAL APPLICATION OF THE STEAM-ENGINE.—The Admiralty, in their extension of the application of steam machinery to maritime purposes, have, on careful consideration, determined on the experiment of fitting three ships' launches with small steam-engines of 8-horse power each, as a means of propulsion, to supersede the ordinary use of oars. That this application can be successfully carried out there is very little doubt; and that such experiment will be made with due caution and calculation by which success can alone be anticipated, we have a guarantee in the fact that both Admiral Dundas and Lord John Hay are themselves the suggesters of the plan, which will be put into operation under their individual inspection. Thus, comparatively speaking, portable steam-engines, if practically worked, will be of incalculable advantage in a thousand respects, and in boat service will give such a mighty power possessing a number of them—say, one to each ship—which must secure for the characteristic enterprise of our gallant service, indisputably, the means of complete success in their undertakings against an enemy. We understand that one of the first applications of these little “donkeys,” which will cost about 130*£*, will be to the 42-foot launch of the *Meander*, 44, Captain the Hon. H. Keppel, fitting for the East India station (Borneo division) at Chatham.

PATENT KAMPTULICON—BETHLEHEM HOSPITAL.—Three years since, the governors of this excellent institution for insane persons, directed that eight rooms should be lined with the kamptulicon, or elastic planking, of Lieutenant Walters, R.M., of Greenwich, made of caoutchouc and cork, and which having fully and satisfactorily answered the purpose desired, eight additional rooms are being now fitted up. The object of lining the cells with this compost is to prevent the most turbulent patients injuring themselves against the hard walls.

WIRE-ROPES.—D. T., though “a practical miner,” seems to be but indifferently informed on this subject. It has never been clearly ascertained who first suggested the idea of using metallic wires, instead of yarns of fibrous materials for making ropes. For anything that has yet appeared, the French are entitled to the credit. The late Sir John Robison saw wire cordage used in the machinery of the Opera, at Paris, in 1822; and, in the report on Harris's lightning conductor, laid before the Lords Commissioners of the Admiralty, in 1839, it was stated, that wire-rope had been used as lightning-conductors in the French Navy; nay, a piece of wire-rope, obtained from the frigate *Calypso*, when at Chatham, in 1822, was actually produced, for the inspection of the committee. Experiments on the subject of their application as ropes for mines were made at Freyberg, in Saxony, in the year, 1827; but it was not till 1834 that they were successfully used in the mines of the Harz Mountains. The suggestion of the plan then adopted is due to M. Albert, director-in-chief of the Hanoverian mines. In the course of a short time, wire-ropes completely superseded the hemp ropes and chains used in those mines. In France, a great many suspension-bridges have been made during the last twenty years; the suspension-cables being formed, however, simply of parallel straight wires, bound together by wires lapped round them. Descriptions of these were published in this country, in 1825; and several are described in *Dreyer on Suspension Bridges*, published in 1832. In 1839, Mr. Andrew Smith took out a patent for improvements in the manufacture of ropes, which were to be made in a similar manner to common hemp ropes, by twisting wires together into strands and ropes. Ropes on this plan were for some time used on the Blackwall Railway, but have now been superseded by those patented by Messrs. R. S. Newell and Co., of Gateshead, in the years 1840 and 1843; which are made by machinery invented for the purpose, and by which a motion is given to each wire, so as to prevent its being twisted, while the wires, generally six in number, are laid symmetrically round a core, to form the strand; and the strands (also generally six) round a core to form the rope, so that the wires are all of the same length, and are subjected to an equal strain. By this means the greatest possible strength is obtained from the material employed.—*Mechanics' Magazine*.

THE HUDSON'S BAY COMPANY'S ARCTIC EXPEDITION.—In July, 1846 the Hudson's Bay Company despatched an expedition of 13 persons from Fort Churchill to Hudson's Bay, under the command of Dr. John Rae, for the purpose of surveying the unexplored portion of the Arctic coast, at the north-eastern angle of the American continent. This expedition has now returned, after having traced the coast all the way from the Lord Mayor's Bay of Sir John Ross, to within a few miles of the Straits of the Fury and the Hecla—thus proving Sir John Ross to have been correct in stating Bootha Felix to be a peninsula, and a portion of the American continent.

OLD CHINESE ART AND INDUSTRY.—According to the late researches of Mr. Stanislas Julien, of the F.L., the making of iron or other metal ships is not a discovery of the present century. The celebrated Chinese philosopher, Hoai-Haw-Tae, speaks of vessels made entirely of iron 156 years before Christ. Moreover, the historians of the province of Kiao-tcheou state, that in the district of Nang-ting is yet to be seen the copper craft of King Keon-taien, who reigned 765 years before Christ. This vessel, buried in the sand of the sea shore, was visible at low-water mark. It is, in fine, recorded in the work called *Chi-i-ki*, that when King Yen Kien (about 265 or 419 B.C.) sent his tribute to Pekin, his ambassador embarked on board of a vessel entirely composed of copper sheets, in which he reached the capital.

NEW PATENTS.

M. Meyer, Finebury, for certain improvements in the manufacture of umbrellas & parasols. J. Walker, gent., Glasgow, for improvements in weaving.

T. Dunn, Windsor-bridge Iron-Works, Manchester, for improvements in the manufacture of railway wheels and axles; and in machinery and apparatus for placing carriages on to a line of rails—for removing them from one line of rails to another, and for turning them.

J. C. V. Coulon, Auxerre, France, for improvements in propelling vessels.

A. B. Von Rathen Putney, for improvements in obtaining and applying motive power.

W. Longmaid, London, for improvements in the manufacture of alkali and chlorine.

T. Langton, Bullwell, near Nottingham, for improvements in the manufacture of knitted fabrics.

J. Murdoch, Staple-inn, Middlesex, for an improved capsule, or small case for protecting matters inclosed therein from the action of the air, and an improved material to be used in the manufacture of the said capsules.

T. Hancock, Stoke Newington, Middlesex, for improvements in fabrics elasticated by gutta percha, or any of the varieties of caoutchouc.

E. Laming, Clichy la Gironne, France, for certain improvements in manufacturing and purifying coal gas, and in treating a residual product of such manufacture; also improvements in preparing materials to be used in the purification of coal gas.

C. Low, gent., Rosebery-place, Dalston, Middlesex, for improvements in the manufacture of zinc, copper, tin, and other metals.

C. M. J. Du Molay, gent., Paris, for improvements in inlaying and coating metals with various substances.

J. Lawson, Paisley, North Britain, for improvements in machinery for separating burs, seeds, and other matters from wool, cotton, and other fibrous substances.

G. Wells, Penton-place, Walworth, Surrey, for a machine for the purpose of causing communication between the guards and engine-drivers of railway carriages whilst travelling on railways, and also for communication between vessels at sea and the shore, and for other similar purposes, and which invention it is intended to call “An Atmospheric Signal by Land or Water.”

J. M. Durafour, Lyons, France, for a new fastening, or improved system of lacing with eyelets.

J. P. Westhead, Manchester, improvements in the manufacture or treating India-rubber.

R. Davison and W. Symington, New Broad-street, London, for certain improvements in the application of heat to the preparation, desiccation, and preservation of bread-stuffs, confectionary, pulse, meats, vegetables, and other edible substances.

J. Fedder, New Union-street, Middlesex, for certain improvements in steam-engines, and in propelling.—*Mechanics' Magazine*.

FLETCHER'S DISTANCE AND TIME-KEEPER FOR LOCOMOTIVES.—This ingenious instrument is constructed for the purpose of ascertaining the distance, and time any part of that distance is travelled over by a locomotive engine; it is placed in a situation where the engineer can readily have his eye upon it, or on a carriage, for the guidance of the guard. By its use, the engine-driver will at all times be enabled to ascertain the speed of his engine, the distance to the next station, and his exact position on the line. A chronometer is also attached, showing railway time. It also registers on paper a description of the journey, the time occupied at each station, and the exact speed travelled during every mile. This paper may be taken off at the end of each journey, marked with the number of engine, date of year, and filed in the railway office. It has a dial, the circumference of which is divided into the number of miles on the railway, and all the stations are correctly marked down at the proper distances from each terminus; while a finger, or indicator, points to the spot occupied by the engineer on the line. A smaller finger revolves once in two miles, by which the engineer can ascertain his speed. Another small finger revolves once in 60 journeys, or 10,000 miles, if necessary, to show the distance travelled by the engine during several weeks. Within the apparatus the speed and distance are registered, and this is effected by a separate wheel running on the rail, and not put out of working by breaks, or slipping, &c. The machinery is so arranged for any line of railway, that the hand on the dial makes one revolution during a journey to the terminus and back.

SELF-MOVING MACHINE.—A correspondent of the *Leicester Mercury* writes as follows:—A poor framework-knitter, named Joseph Hutt, now living near the church of Hinckley, has, after 20 years' application and study, completed a machine, which he calls a “self-moving machine,” or perpetual motion; and he is very confident of its being fully entitled to the term “perpetual,” and, also, that its power may be increased almost to any extent. From his own account and description of the machine, it appears that he set it in motion on the 26th of August last, since which time it has continued to work exceedingly well, and with the greatest ease and regularity; and that it is so constructed, as to bid fair to become one of the most useful inventions that has hitherto been discovered. Its motions are both quick and powerful, and may be applied to any thing to which mechanics may think well to apply it. It does not require the aid of steam or any other power to keep it in motion, having one continued and regular movement of its own. Its bearing arm wants no repose, and it will continue as long as the movement it is made of. Further particulars can be had, and testimonials seen, by application to the manufacturer.

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